CANNING

AND

HOW TO USE CANNED FOODS

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AND

HOW TO USE CANNED FOODS

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NICOLAS APPERT

1750-1841

Father of the Art of Canning

INTRODUCTORY

The object of this brief treatise is to acquaint those who are interested in how their foods are prepared with the methods employed in modern canning, and to indicate to those who use canned products that these should be considered stock upon which to build culinary operations, rather than as foods that are complete and ready for use.

Nothing has done more to lighten the burden of the kitchen than the modern cannery. By using highly specialized machinery, it is possible to save labor, to handle large quantities of a raw product, to use sanitary methods, and to prepare food better than it is possible to do in most homes. Each pea-viner will do as much work as a hundred or more women, and do it better. Likewise other machines, do what scores would have to labor hard to accomplish. In removing this drudgery, they make life more livable. The taking of the work away from home and away from observation, except to a comparatively few, has developed a lurking suspicion that possibly some of the material used and the care taken in its preparation are not all that they should be, and this suspicion has grown to a prejudice against canned foods. A presentation of the facts may serve to correct some of these misapprehensions.

The most serious error in the use of canned foods has been to consider the food ready to serve, or needing only to be heated, or given some other equally simple manipulation. The work of the canner has been to collect the raw material, to do the rough work, to get rid of the waste, and to deliver the food in the best possible condition for the housewife or a chef to exercise culinary skill in its dressing or final preparation. The difference between good dining, enjoying one's meals, and just eating, is in the appetizing way in which the dishes are prepared and served. An extra price is paid at the better hotels and

restaurants for the sauces, relishes, etc., that give zest and finish to the dishes. The contents of the can, with the minimum of preparation are, as a rule, ready for consumption, but through additional treatment may become more appetizing and inviting.

The brief outline of what are recognized as proper sanitary measures for canneries is incorporated as it will serve as a guide when visiting any food producing establishment.

MANUFACTURING CANNED FOODS

HISTORICAL

Among the military measures enacted by the French government near the end of the eighteenth century, was the offering of a bounty of 12,000 francs for an improved method of preserving foods. The object was to secure better quality and to reduce the loss in waste and spoilage in foods used in military and naval stores. This bounty seemed generous at the time and in fact was sufficient to attract the attention of some capable men. Nicholas Appert, an expert confectioner, brewer, distiller, and chef was among those who began experimenting; he worked from 1795 until 1804 before he attained his first success which consisted in heating the product and then hermetically sealing the container. He continued his efforts, using many different substances, and so perfected the art that in 1810 he published the results. He was awarded the prize and almost universally honored as the discoverer of the art of canning. Appert did his work so thoroughly, and the method was so simple that others began using it as early as 1815, and it was put into commercial practice in 1820. Although conceived primarily as a war measure, the possibilities and advantages of having food preserved in such a wholesome, palatable manner attracted attention immediately to its use in the household. The use of such foods has increased until the value of the product in this country alone amounts to about $250,000,000 annually.

Canning is the art of preserving a food through sterilization by heat, and maintaining it in that condition in a hermetically sealed container. In its highest development it is an attempt to maintain the food in as nearly the natural condition as possible, or in the condition in which

it is usually consumed. Previous to the introduction of this method, resort had to be made to pickling either in salt or vinegar, to drying, to smoking, and to preserving in sugar. Each of these methods was applicable to certain products, but was productive of changes in character, and was attended by so much spoilage in holding, that other methods which would overcome these objections would necessarily meet with success. Canning leaves much to be desired, but is a vast improvement over other methods, besides it is applicable to so many products which can not be conserved in any other manner, and withal is so simple that it can be used in the home as well as in the factory.

According to the account given by Appert, he packed his products in glass bottles, added sufficient water to cover, inserted the corks, and then placed them in the water bath. They were heated very gradually for varying lengths of time, depending upon the character of the food. He obtained a temperature of from 190 to 200° F. (88 to 94° C.) in the center of his bottles, the maximum being 212° F. (100° C.). He used glass exclusively, and achieved results which are difficult to surpass with all our modern equipment.

In 1807, a Mr. Saddington in England described a method of preserving, the essential features of which were that the fruits be placed in glass bottles, loosely corked, put in a water bath at 165° F. (65° C.) for 1 hour, then boiling water added to cover the fruit, the corks driven in, and the bottles laid on their sides to swell the corks. He did not claim to be the originator of the method, and it is believed that the general principles were obtained by him while traveling in France.

Appert did not know why foods kept when treated according to his method, but ascribed it to the exclusion of outside air after applying sufficient heat to the food. He had evidently tried heating the food in a vessel and pouring it into bottles and had unfavorable results, and therefore concluded that it was the effect of the outside air. Those who followed him also laid great stress upon

the effect of the air, and made every effort to secure a high vacuum. When tin cans came into use, they were sometimes vented as many as two or three times in order to secure the desired result.

Science had not progressed sufficiently to determine the real cause for keeping, and, naturally, conclusions were drawn which seemed to coincide with what appeared to be the controlling factors in practice. The French government appointed Guy Lussac, the foremost chemist of the time, to investigate the cause for keeping. He reported that spoiling was a series of oxidation changes, and that by the exclusion of outside air these changes were prevented in bottled or canned foods. This explanation was accepted until the advent of the new science of bacteriology, which brought the true explanation. It is now known that all foods, water, air, and the containers are bearers of bacteria and other micro-organisms; that the effect of the heat is to destroy them, and that the hermetic container merely excludes those from without. This science has also shown that all organisms are not killed at the same temperature; that some spores possess great resistance; and that some products bear types of organisms which are more resistant than others. These facts make it clear why some products, like corn and pumpkin, need a very high temperature and for a very long time, while some others, as raspberries and loganberries, require a relatively low temperature for only a few minutes. The honor for discovering most of the fundamental principles involved also belongs to the French master, Pasteur, though his work was in reality directed along a different line.

The first application of the science of bacteriology to canning in this country was made by H. L. Russell, of the University of Wisconsin, in 1895. He was followed by Prescott and Underwood, at the Massachusetts Institute of Technology, in 1896. Since that time sufficient work has been done to enable factory superintendents to process all lines of food products with comparative safety.

COMMERCIAL CANNING

The methods described by Appert were so simple that commercial canning on a small scale was begun almost immediately in Europe and started in this country in New York, in 1819, and in Boston, in 1820. Ezra Daggett and Thomas Kensett are credited with having packed some salmon, lobsters, and oysters in New York, and William Underwood and Charles Mitchell with having packed fruits in Boston in these years. These pioneers had learned the methods before emigrating to this country. The firm of Underwood in Boston has been in continuous operation and is the oldest in the United States, the business established by Appert and continued by his descendants being the oldest in Europe. The first cannery in Baltimore was opened in 1840, the sardine industry was started at Eastport, Maine, in 1841, and the first factory in the central states was operated in 1860, on the Pacific coast in 1856, and in Alaska in 1878. It is also of interest to note that nearly all of the pioneer factories started on fish food as the primary pack, and fruits and vegetables as incidental. At the present time there are about 3,000 factories in the United States, having an annual output of 3,000,000,000 cans.

HOME CANNING

There is no essential difference between home and factory canning except that which is made possible through handling materials in large quantity by special machinery, to better grading for size and quality through superior facilities, and to being better able to apply a uniform and proper temperature suited to the product. The home is not ordinarily supplied with the necessary equipment or means of control to get the best results. In many respects a home-canned product stands in the same relation to a factory product as the home-made butter and cheese to that of the creamery

which is equipped with separators, pasteurizer, ripening and chilling tanks, etc. Some persons through the exercise of skill and ingenuity prepare a very superior article of butter or cheese in the home, but the average is not high. The really distinctive feature in home-canning is the use of spices and flavoring, a valuable factor which the commercial packer has neglected. The amount of home-canning probably far exceeds any estimate that may be made, as it is largely done in glass, and the jars used repeatedly. There are thousands among the rural population, and many in the cities, who pride themselves upon their handiwork, and who pack from a dozen to a hundred or more cans each year.

PRINCIPLES IN CANNING

While the fundamental principle in preserving a food product is the administration of heat in due degree and for sufficient time to cause sterilization and to maintain the condition in a closed container, there are other factors of great importance, therefore, a brief discussion of the methods used and principles involved may well precede the general treatise.

Appert used an open water bath for heating his bottles, and this method is the one in common use in the packing of all fruits. In this method a temperature of 212° F. (100° C.) is the maximum attainable, and in practice can not be reached in the center of the can. With fruits, however, this temperature is not necessary, as the more highly acid they are, the more easily they are sterilized. Most of the fruits can be sterilized at 185° F. (85° C.) and in experimental work the results have been quite satisfactory as low as 165° F. (65° C.), at one heating, though continued for a longer period. As far as known to the writer, all fruits may be sterilized in a very short time at or near the boiling point, and as the temperature descends below the boiling point the period must be increased,

but it does not follow in a definite ratio. Vegetables are not so easily sterilized as fruits; for the most part they require a temperature above 212° F. (100° C.), if applied only once. In order to secure the necessary increase in temperature, first salt was added to the bath, and later calcium chloride was used. With the latter, the heat could be made to reach 250° F. (121° C.). Both the salt and the calcium chloride solutions attacked the tin cans and gave them an unattractive appearance. Heavy mineral oil has been used, but it necessitates a thorough scouring or cleansing of the cans after treatment. The most common method now in use is to place the cans in an autoclave or retort and subject them to steam or hot water under pressure. In this manner any desired degree of temperature may be attained. The general practice is to process all vegetables, meat, fish, and milk in this manner, varying the degree and the time to suit the particular product. This method has not been available in the home until quite recently, as small pressure cookers were not built.

A further improvement in the matter of processing has been the development of the agitating cooker. Some products which have a heavy body, require a long time to cook because the heat cannot penetrate rapidly. The time therefore may be greatly reduced by causing the cans to roll or to turn in such a manner that the contents will come to the outside, or that the liquid present will be carried through the mass. It has been found that slow, even agitation will not necessarily break up the fruit or product, but that it will reduce the time by 75 per cent. The special cookers used for this purpose also have the advantage of being continous. In home canning, in lieu of these special devices, resort may be had to the principle of pasteurization, that is, heating the cans for a short period on three or four successive days.

An illustration of the great difficulties which the pioneers had in determining the proper process upon any given article is to be found in the work of Isaac Winslow. He made his first attempts to can corn in 1839, and repeated

his efforts year after year, the experiments mostly proving failures, but always attended with enough success to hold out a ray of hope. He was not reasonably successful until 1852, and was not granted a patent on the process until 1864. At present, one can arrive at a proper process through experiment and by a systematic examination of the product in a reasonably short time.

While sterilization may be accomplished by any of the methods already cited, the difference in the effect upon the product is quite marked. For example, asparagus processed at boiling heat does not have the tenderness nor the flavor that is obtained in that which is processed in the retort. It is decidedly inferior. Most vegetables are improved by heating above the boiling point. With fruits the reverse is true, the conservation of flavor being best at as low temperature as is practicable to be employed in sterilization.

THE CONTAINER

Appert used the glass bottle for his experiments, but the tin can made its advent almost coincident with the art itself. Saddington gave a brief description of the process to the English in 1807, and in 1810, Peter Durand took out a blanket patent on containers of almost every known material, and specifically mentioned tin. He has, therefore, become known as the father of the tin can. There is no such thing as a best container for all products. Some things are better in glass and some in tin. The original long-necked, narrow-mouth bottle gave way to the wide-mouth bottle, and later to the jar with the metal cap and wax top to take the place of the cork. This style of jar may be found in some of the rural communities to this day. Later came the screw cap, and all of the other devices to make a tight closure, the seal being made by a gasket of rubber or fiber. The glass container has its drawbacks because of cost, ease in breaking, increased labor required, added weight, and higher freight. It has had a large usage

in domestic canning, and, through recent improvements, it is gaining as a commercial package. Earthenware jars were introduced as a substitute for glass, but have had only a limited success. In England, all goods packed in glass are referred to as bottled and the process as bottling.

The tin can is preeminently the container of commerce, and, like the glass jar, has gone through many stages in its evolution in arriving at its present state of development. It lacks much of being the ideal container, but it is the most practicable that has been evolved. Tin cans are classed as open top, hole and cap, and wax top, depending upon whether the entire end is to be attached by a process of crimping or double seaming, whether the cap is to be soldered on, or whether wax is used in sealing. The latter type is used exclusively in domestic canning, but is giving way to the solder cap style. Cans are known as key opening if some part of the can has been sufficiently cut to permit opening by stripping a part out of the side or top by means of a key. Some cans are called "enamel" lined when they have been treated with a lacquer on the inside, and these are decidedly advantageous in conserving color in products like berries, beets, etc. In the trade the tendency is to limit the term "canned" to food packed in tin only, and when glass is used to refer to that style of package as fruits, etc., in glass.

METHODS IN COMMERCIAL CANNING

Good commercial canning begins with the production of the material, in the selection of the seed, as for corn and peas; in getting the right variety of fruit; and in supervising the cultivation, harvesting, and delivery of the raw material to the factory. It is imperative that the raw material be of first class quality, uniform, and in the proper stage of development to give the best results. One cannot use mixed varieties of peas, cut at all stages of maturity, and since these and other products must be

furnished by scores of farmers and growers, it is necessary for the canner to have a complete understanding and supervision over the work. This is one of the very important features with which the consumer is not familiar, and accounts in a large measure for "quality."

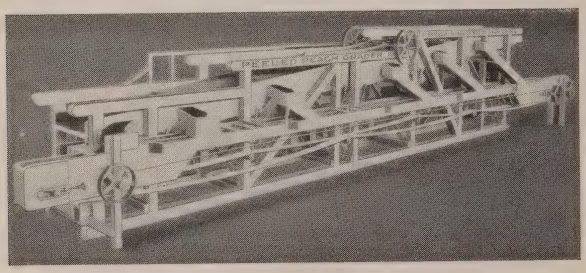
The immediate work in securing products involves rush operations not associated with regular harvesting. Most of the vegetables are green and in a state where they change or spoil rapidly. Asparagus must be cut and packed the same day, and so important is this that the factories have been located near the growing beds. The standing for a day makes a difference in the degree of toughness and flavor. Peas, corn, and green beans are all seriously injured by standing. Berries must be collected in very shallow boxes, and fruits, such as apricots and peaches, picked when just ripe, and handled in shallow lug boxes to prevent bruising. The milk collected for the evaporated product must be fresher and cleaner than that which is generally delivered in the city market.

GRADING

The first operation in almost any factory is that of grading. The foreman looks over the loads of peas, corn, tomatoes, or fruit, and sends them to different points to be unloaded according to their condition. This is only a starting point, and it is continued in almost every successive operation throughout the factory. Grading for quality must be done by the eye for the most part, and for size by machinery. It is frequently a question of whether this is not carried to excess, but people eat with their eyes fully as much as with the sense of taste and demand peas that are uniform in size and color, though they are not so good as the mixed, and demand small peas at high cost in preference to the large, though they are not so nutritious nor economical. The extreme to which the work is carried is well illustrated in the offering of fifteen or more grades

of Alaska peas, and an equal number of yellow cling peaches. It is carried to such a point for jobbing purposes that even the packer cannot recognize the difference in his own pack without having two or more grades together.

The machines for sizing are generally built on the principle of a revolving cylinder or of vibrating screens, having holes of standard dimensions to make the necessary separation. The first set of holes are large and all except the largest sized peas will pass through. The next set one size smaller takes out the next grade, and this process is continued to make the number of sizes desired. In the case of fruits,



Machine for grading fruits by means of different size of screens.

tapering rollers may be used so that as the fruit reaches a certain size it will fall through or the rollers may mechanically open and permit the dropping of certain sizes in the proper bins. An ingeniously devised wire belt is also made to open and close a mesh of varying size, and an apple sizer is made to work upon the principle that with a uniform force a light body can be thrown farther than a heavy one.

There is only one important machine used for mak ng the separation for quality, and that is for peas. It is based upon the principle that tender succulent peas are light and that older ones are heavy, and upon this difference an approximate separation can be made by immersing them in a weak brine. The tender ones float and are skimmed

from the top, while those that sink are conveyed from the bottom. The separation of green and soft fruits and those off color must be done by hand.

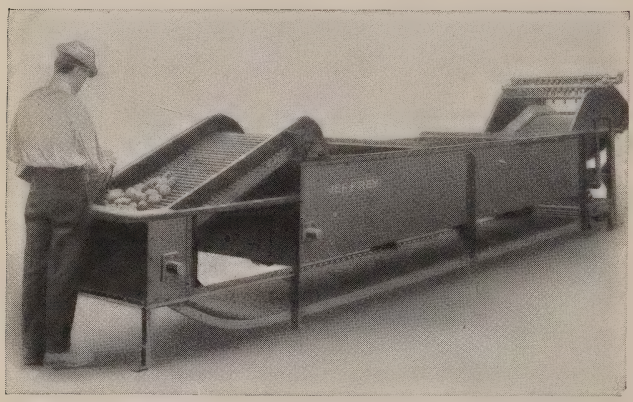
PRELIMINARY PREPARATION

The general preparation will naturally vary widely with the different products. Berries are stemmed and the defective ones picked out; plums are stemmed; cherries are stemmed and may or may not be pitted; apples and pears are peeled and cored; peaches are pitted and peeled; tomatoes peeled and cored; peas are shelled; corn is husked; beans are snipped; and beets, carrots, sweet potatoes, etc., are peeled. Some of these operations require especial and elaborate machinery, while others are dependent upon hand work.

WASHING

The most important operation in canning is that of washing, and for this purpose machines have been invented which are most ingenious in the way and care with which they handle particular products. In some, the product is soaked and then sprayed; in others, it is soaked and agitated to loosen dirt; in another it is sprayed with a large volume of water; and in still another the sprays are small but have a strong pressure. The most common type of washer is known as the squirrel cage. A cylinder is made of woven wire and a perforated pipe runs the full length within, so that peas, beans, or any other product goes through in a single layer, rolls over many times, and is constantly subjected to sprays of water as light or as heavy as desired. Another type of machine passes the product on conveyers under sprays or between sprays. The principle of using sprays is the same as that of washing a floor with a hose with an open end or with a nozzle. The former will use a lot of water and accomplish little, while the latter will use little water and accomplish much if the pressure be

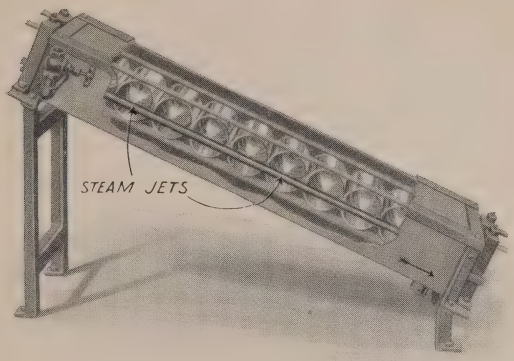
right. Berries need a slight immersion to loosen dust and adherent dirt, and then should be passed under very fine sprays to cause their removal. Pears, apples, and all cut or sliced fruits need to be kept submerged in plenty of fresh water until packed in the cans. Tomatoes need very small but strong jets of water directed upon them. Peas need washing both before and after blanching and probably require more water for their entire preparation than any



Type of washer for fruits and vegetables, which carries them into a tank of water where they are agitated gently but thoroughly to loosen dirt, then sprays them as they emerge.

other product. All the vegetables need to be washed under strong jets of water.

All cans need washing irrespective of their appearance. They collect dust and dirt during manufacture, in shipment and in storage and need to be rinsed just before using. Machines have been devised which do this work very well. The open-top can collects more dust than the hole and cap can, but is much more easily cleaned. The milk can has such a small hole that dirt cannot enter.



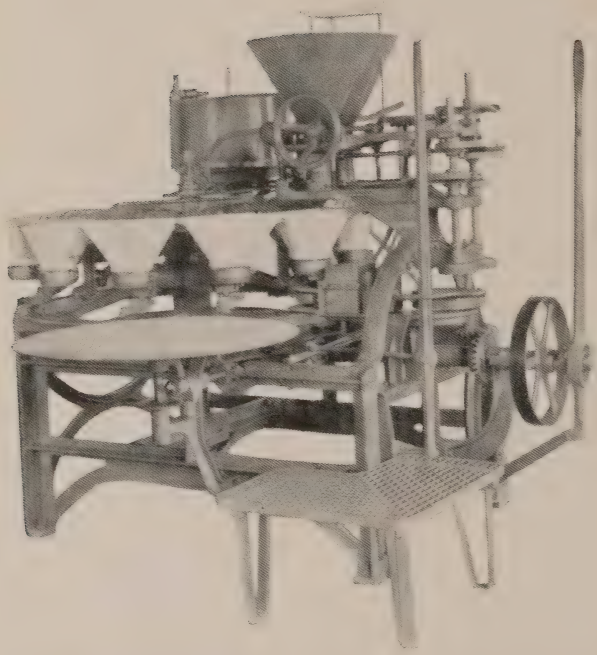
Machine for washing cans effectually by strong jet of steam or water directed on the inside.

BLANCHING

Blanching is a necessary operation with most vegetables, and advantageous with some fruits. The term is derived from the French *blanchir*, used in the culinary sense, meant to "scald or boil off," and not to whiten as is frequently inferred. Peas, beans, spinach, etc., are dropped into boiling water from one to fifteen minutes to cause their softening, and also the removal of a rather objectionable sticky substance from the surface. Peaches are dipped in hot water to make them sufficiently flexible to pack well in the can, but incidentally the process also serves to obtain a more uniform color. The blanching may be done in steam, but the liquor will not be so clear. This work is accomplished by automatic machinery.

FILLING THE CANS

Most vegetables are filled into the cans by automatic machinery. Corn is heated in a tank with the proper amount of water, salt, and sugar, and filled into the cans

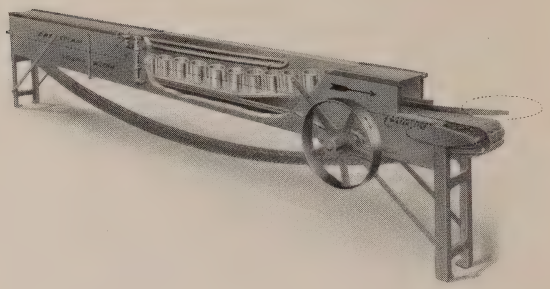


A filling machine for delivering a measured amount of a vegetable, like peas, beans, hominy, etc., and then adding the proper quantity of brine. The work is done with more accuracy and with much less injury to the product than if done by hand.

while hot; peas, tomatoes, string beans, soup, milk, fish, and potted meats, each has its special filling machine. The higher grades of fruit require hand-filling to get the proper quantity and to prevent bruising. The practice is to fill the cans as full of the product as possible without injuring in any manner, and then to add water, brine, syrup, or sauce to fill the interspaces. In order to prevent short weight or overweight most hand-filling is checked by scales.

EXHAUSTING

After the cans are filled, they are heated slowly until the contents are hot, before capping. The object in heating is to cause the expulsion of air. This has little, if anything, to do with sterilization, but if the air be not driven out, there is not the proper collapse of the can, and it may be difficult to tell when spoilage occurs. A far more important reason is the lessening of the attack of the contents upon the container. The exhausting should be slow, taking from six to ten minutes with products containing more or less liquid and a longer time for those which are almost solid. The temperature should not be less than 130° F. (55° C.), in the center of the can, and it is preferable that it should reach 165° F. (65° C.). Very rapid heating causes the cells to swell and burst, and injures the appearance. A machine has been devised which will exhaust the air mechanically while the can is being sealed and which has some advantages over the heating method. Ordinary cans have a partial vacuum of from 6 to 8 inches, those well exhausted, 10 to 13 inches, and those very well exhausted up to 22 inches. In the factory the exhausting is accomplished by passing the cans on a conveyer through a steam box or a shallow hot water bath. Corn and other products filled into the can while hot are not exhausted. In the home canning the same result is accomplished by setting the glass cans in hot water until the contents are hot before clamping on the lid. The presence of a solder mark on the end or side

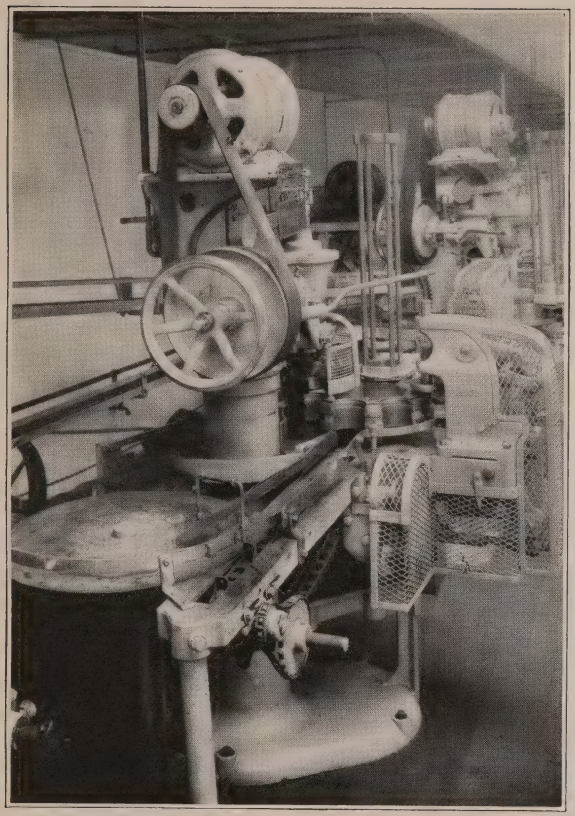


The simplest type of exhaust or pre-heater, conveys the filled cans slowly through hot water, steam, or both and hot to the closing machine.

of a sanitary can usually indicates that the product has been sealed cold, then placed in a retort or a bath for a time, and taken out and vented. This gives a very thorough exhaust and was the method formerly employed on all fish and meats, and to a certain extent on vegetables.

CLOSING THE CAN

Open top cans are closed by a machine known as a double seamer. The edge of the top and the flange on the side are hooked together and turned under with such force that it makes a hermetic closure. This is aided by a very thin layer of cement or a paper gasket. The machines used for this purpose work at speeds varying from thirty to eighty cans per minute. No acid or solder is required. Hole and cap cans are closed by automatic machines which wipe the top, place the caps, apply the flux, solder, and tip the vent at the rate of sixty per minute. The closed cans may be run through a hot bath for inspection for leaks. The presence of a leak is noted by the rise of bubbles. The percentage of leaks is so small that the



Machine for sealing cans without acid or solder.

majority of the factories do not resort to this precaution. Where canning is done on a small scale, the hand-capping steel and copper tipper are used.

PROCESSING

The term processing is applied to the operation of sterilizing. As already indicated, this is accomplished at a temperature and for a time best suited to the product. No rule can be followed, but each product must be treated in the manner found best by experience.

The simplest method of processing is to place the cans in crates or iron baskets and immerse them in a tank containing boiling water. The water is kept hot by turning a jet of steam into it at the bottom. These open baths may be very simple wooden tubs or metal tanks, or very long ones into which the can may enter at one end and travel slowly through and come out at the other. The same kind of apparatus may be used for processing at a lower temperature, or for pasteurizing, by keeping the water at the proper degree of heat. Cans may also be carried into boxes and steamed without pressure. Processing above the boiling point is done in iron boxes or steel cylinders known as retorts. These may be vertical or horizontal and of such size that they will hold from a few hundred to three or four thousand cans. In the vertical retorts steam may be used alone or steam may be introduced in water. In the horizontal retorts steam only is used. The pressure will vary from 5 to 15 pounds, thus giving temperatures from 220° F. (105° C.) to 255° F. (124° C.). The practical agitating cookers have thus far been of the open type, rolling the cans in single file through water or steam.

The proper control of time and temperature is so very important that this is no longer entrusted to the attention and memory of the cook. Temperature controllers and timing devices as well as recording thermometers are installed as a part of the equipment, in order to guard

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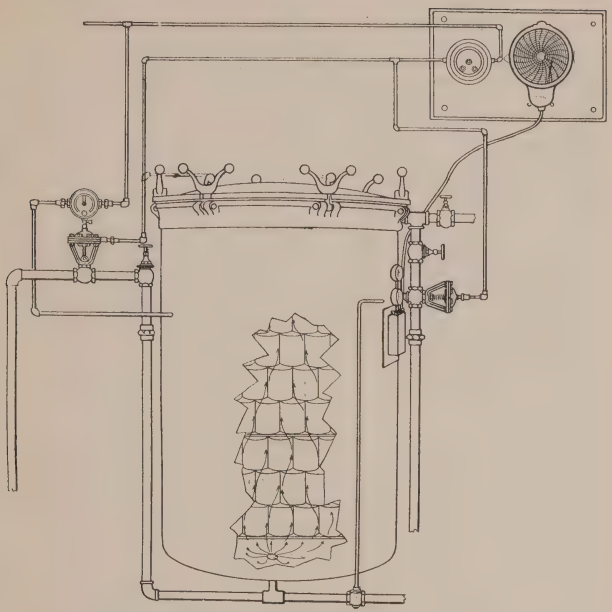
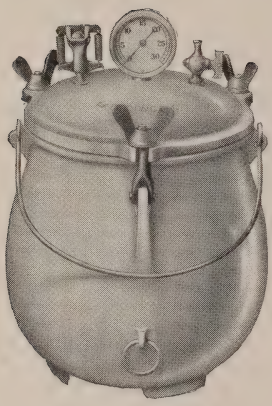


Diagram of a retort, 6 feet in height, nearly 4 feet in diameter, and holds from 600 to 1,500 cans. Steam enters at the bottom and heats water or surrounds the cans.

against mistakes. These have been perfected to such a degree that in processing in a retort the chef can turn on the steam, turn the key on the controllers, and know that the temperature will be maintained, that the steam will be cut off at the right time, and that the air and water will be admitted to properly cool the cans.

HOME EQUIPMENT

The simplest equipment for home canning is a heavy pan somewhat deeper than the height of the cans. A wash



boiler answers very well. A wooden false bottom is desirable when using either glass or tin, though not absolutely necessary for the latter. The tin cans are set in sufficient water to exhaust them, and when processing, they may be completely submerged. When packing in glass, jars are usually not more than half submerged, or they may be set above the water and a tight cover be placed over the cooker and dependence placed upon the steaming to give the proper temperature. A small pressure cooker suitable for many purposes in the kitchen may be used for processing a few cans at a time at any desired temperature. (A simple pressure cooker is illustrated.)

COOLING

The process should be carried to the point of sterilization and then should cease, as retention of heat for a longer time only tends to cause injury. For this reason it is important that cooling should take place at once. When the products are packed in the store room and ricked or piled without cooling, no one can say what process was given; they may be hot for hours, and some cans even for days. The result is invariably an uneven and an inferior product. Under extreme conditions, tomatoes may become as brown as a walnut and acquire a bitter taste, peas become mushy and taste scorched, and the majority of the cans show an unnatural darkening. One of the anomalies of this condition is that in peas and corn particularly, souring may take place, due to bacteria which can withstand a high temperature.

Cooling is accomplished by immersing the cans in tanks of water, by turning cold water into the kettles, or by spraying the cans in the air. Where water is scarce, the practice is to stack the cans in an open shed for a day or two.

LABELING AND BOXING

After the cans are cool, the ends should be well drawn in, and the cans bright and clean and free from rust. When canning is done near the sea, or where there is much dampness, it is a common practice to lacquer the cans. This is done as soon as possible to prevent rusting, and not later to cover up rust. The cans are then labeled and boxed. The nailed box is the one generally used, though the wire-bound is coming into use on account of the saving on lumber and freight. The fiber-board container is also gaining recognition, especially for small-sized cans. Whatever style of box is used, it should be neat, clean, and of sufficient strength to stand shipment to the consumer.

FOOD FACTORY SANITATION

Modern food manufacture means in reality a high-class community kitchen for the preparation of food for many consumers. Therefore it becomes a matter of public interest that the sanitary condition be of a high order. A description of the proper requirements for a cannery may serve to indicate, in a general way, what should be expected of all food manufacturers.

The location of the plant should be away from lines of business which may be objectionable, as tanning, hide-dressing, soap-making, fertilizer-grinding, or any other manufactory in which disagreeable odors are given off, or in which decomposition and putrefactive processes are associated. The site should have proper drainage, an ample

supply of potable water, and be protected against unnecessary dust and dirt.

The building can no longer be any kind of shed or basement, but should be adapted to the use to which it is placed. It need not necessarily be expensive, but should be so constructed that it can be kept *clean*. The ceilings should be high and all walls, supporting columns, and partitions be made smooth so that adhering dirt be reduced to the minimum, and that cleaning be done easily. The preference is for a finish that will admit of being washed with a hose. The floors should be water-tight and well pitched so that any material which may fall on the floor can be flushed off and that drying take place quickly. It is preferable that the lines of drainage should pass under the permanent machines and tables where most water is used, in order to limit as far as possible the damp areas. Daily scrubbing is a necessity in a clean cannery, and the labor can be reduced more than two-thirds by a proper construction of the floor. These conditions apply with special force to that part of the factory where the preparation is carried on and much water used.

The lighting and ventilation should be as nearly perfect as possible. Where the floor space is small, dependence can be put in large sidelights, but in any large rooms there should be either turrets or a saw-tooth roof construction. No part should be dark. With saw-tooth or turret roof construction artificial ventilation is rarely necessary, but in cases where it must be employed, the air should be forced into the building rather than depend upon sucking it out. When the intake of the air is controlled, it can be made clean and be distributed where wanted. When dependence is placed upon suction, no such control can be exercised. Good lighting and ventilation contribute so much to the efficiency of labor that it should be regarded as an economy at any cost.

Water should be available at many points for hose connections, for washing machinery, tables, floors, etc., and for the hands of the employees. Steam lines should be

run to points where cleaning and sterilization by steam is desirable. The capping machines, filling machines, etc., can be cleaned much better with steam than by any other method.

The tables used in the preparation room should be plain and as free from joints, cracks, angles, and corners as possible, and of materials that can be thoroughly cleaned. They should be of the proper height for comfort, whether the workers stand or sit. The machines should be designed to admit of cleaning, and set far enough from the wall or

Type of sanitary table on which the buckets or pans are carried to the peelers, and when the preparation is completed, the product and waste are carried away. The pans may be washed after each operation.

other machine to be easily reached from all sides. The first consideration in both factory and equipment should be cleanliness, and these principles apply as well to one kind of food production as to another.

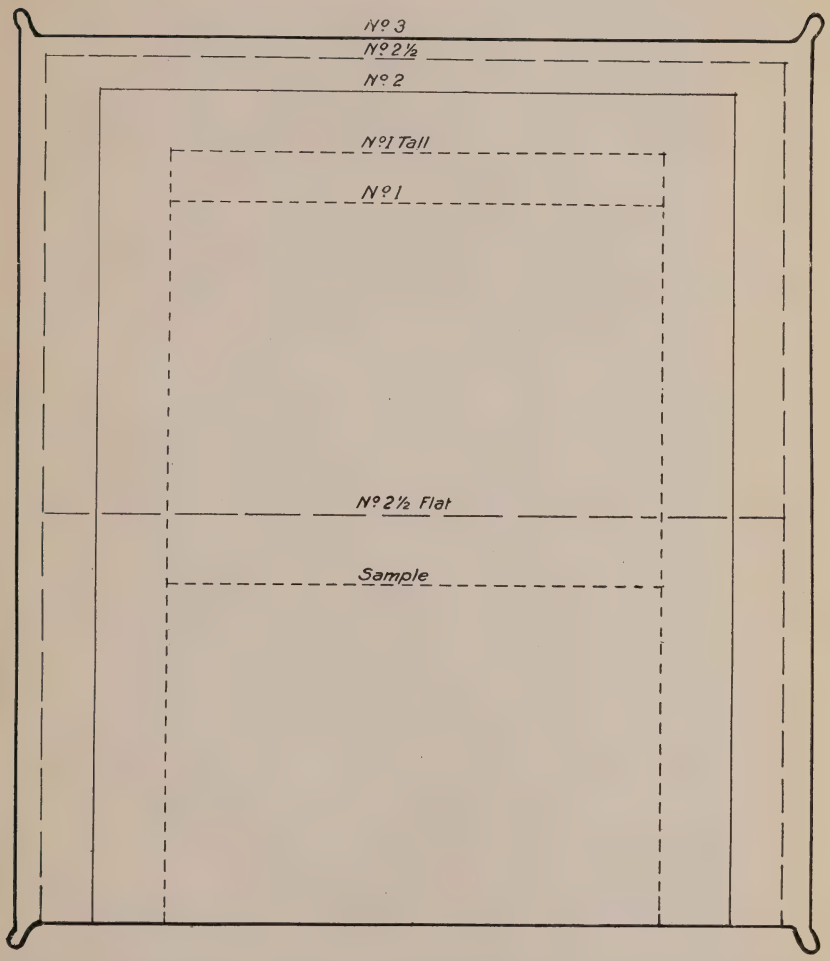
A modern food factory must go farther than providing building and operating equipment; it must make adequate provision for the comfort of the employees. There should be a place for hanging wraps and placing parcels,

separate from the factory room. There should be sanitary toilets and sanitary drinking fountains. A first aid cabinet should be provided for accidents and emergencies and some one coached to render proper assistance. Stools should be provided for employees for operations which may be done as well sitting, as continuous standing becomes exhausting and lessens efficiency. Uniforms, while not necessary, are advantageous from both the standpoint of employer and employee.

The laws of most of the States define the conditions under which a factory can operate, the hours of labor, the age at which employment may begin, the owner's liability in case of accidents, provision for safety devices, etc. These are not uniform, but they indicate the trend toward making food factories what they should be.

SIZE OF CANS

There are certain sizes of cans that are regarded as standard but unfortunately are not based upon any unit of volume nor upon average domestic requirements. Most of them have originated in trying to make a certain number of cans out of a sheet of tin plate of a certain size, the logical alternative of making the sheet of tin plate to such size as will build cans of certain capacity does not seem to have been considered. The regular No. 2 can is too large for peas, corn, and beans in amount for the average family to use at one time, and the unused part is not as attractive when reheated. The No. 3 can of tomatoes is likewise an anomaly though the objection is not so strong as for the No. 2. The No. 2½ can was introduced as a compromise on the No. 3, especially for fruits, but recently a better size is being used having the diameter of the No. 2½ but only one-half the height. After machines have once been built to make and close cans of a certain size, it is difficult to make changes no matter how desirable it may be.



A diagram in full size cross section of the principal round cans for household use.

The following are the dimensions of the regular cans:

No.	*Diameter, inches*	*Height, inches*	*Capacity, ounces*
1	2 11/16	4	12
2	3 7/16	4 9/16	22.2
2 1/2	4 1/16	4 3/4	32.6
3	4 1/4	4 7/8	36.4
10	6 3/16	7	116.1

The majority of staples are packed in cans of these sizes, but there are numerous other round, oval and square cans for fish, meat, milk, asparagus, etc.

THE LABEL

The labels in use on canned foods are not sufficiently descriptive. The type originated early in the history of the industry when secrecy in the factory was an asset and, strangely enough, even the label avoided giving any information. After the business developed and the real grading for size or quality became a part of factory operations, instead of using such legends as would enable the purchaser to follow these differences, brands like "Sunrise," "Noonday Sun," and "Sunset" were adopted. Later the lithographers came to the aid with appropriate embellishments to heighten the effect, and one was permitted to make a selection according to the gaudiness of coloring. Why this anomaly persists is almost beyond comprehension. The fact that the food is completely concealed from inspection should be the strongest possible reason for describing the grades. The grading of peaches serves well as an example of how the differences are made at the factory, and they can only be seen by the consumer on opening the can. The differences, however, are not greater than with other fruits to which the

same principles apply. The very large perfect stock of peaches is packed seven to nine pieces in the can, and a 55° syrup added; the next size is packed nine to twelve pieces in a can and a 40° syrup added; and the third size is packed twelve to fourteen pieces in a can and 30° syrup added. In all these the fruit must be in prime condition, even in texture and color, and nicely pitted and peeled. The difference in the grades is not in quality, but in the size of the fruit and in the density of the syrup used. There are some persons who like large fruit in a heavy syrup, but there are probably many more who prefer fruit of medium size but also in heavy syrup; there are also persons who like fruit moderately acid in character; but under present conditions these are deprived of the privilege of making a selection. There are grades of peaches known as standards, seconds, and pie or water. The fruit is of smaller size, some may be a little soft, some a little green, some spotted and more or less blemished in trimming. The standard is the better grade with a syrup of 20°, the seconds next with a syrup of 10°, and the water or pie grade that which is packed in water. These contain good food material, though less attractive in appearance than the higher grades, and need to be sold for what they are. The trade custom is to label the different grades as special extra, extra or fancy, extra standard, standard, seconds, and water or pie stock, but the label conveys no definite information and should be supplemented by appropriate description. There is clearly a distinction between labeling a product the composition of which is standard, as already cited, and one which might be largely the result of a process of manufacture, such as soup. In the latter case, the product is due to the skill in blending ingredients, adding certain condiments, method of cooking, etc., and these are the factors which give individuality. The use of a broad name in such cases needs no further elaboration.

The technical requirements for labeling canned foods are quite simple. They are: 1st, that the name of the product be given; 2d, that if the article be colored, made from trim-

mings, or from dry stock which has been soaked, that the proper descriptive term be used in connection with the name; 3d, a statement of the weight or volume; 4th, that the name of the manufacturer and place of manufacture be given in case of compounds; in the case of a product not a compound, the name of the packer may or may not appear, instead, the name of a distributor may be used; 5th, the design shall not be misleading; 6th, the descriptive matter must be in English, though the use of other languages is permissible in addition. The second regulation, as far as it relates to color, has almost no application to American packed products. French peas colored with copper came under this regulation, but since the use of copper has been prohibited, there are practically none to be found on the market. The provision relating to trimming stock has its principal application in the use of tomato waste used in ketchup, pureé, soup, etc. Peas and lima beans are designated as soaked when made from ripe or dry stock. They are perfectly good and wholesome, but it is proper that they be described in a manner to prevent their being sold for the green article. The statement of weight should be in pounds and ounces for the net contents of the can. A ruling of the officials charged with the enforcement of the Federal Food and Drugs Act requires that the cans be filled as full of the article as is possible and only the amount of water, brine, or syrup used that is necessary for the proper preparation of the product without injuring its character or appearance. A safeguard has thus been made to protect the consumer against short weight of the principal product. The fourth regulation, pertaining to compounds has almost no application to canned goods as there is very little mixing; it applies chiefly to jellies, jams, etc. If the place of manufacture be given, it must be the true place, as Maine corn must be packed in Maine, Columbia River salmon packed on the Columbia River, and not in Alaska. In the case of a large company having a number of factories, only the home office need be indicated, unless in the judgment of the officials, the label might be mislead-

ing. The design must not give a false impression, as a picture of green peas in pods used upon a can containing soaked peas. This covers the essential requirements in labeling. The food officials have rendered some decisions which serve as a further guide for labeling certain lines of products and indicating what they consider proper size of lettering, etc.

SYRUP

The syrup is a very important part in the canning of fruits. It becomes as much a part of the grade as does the size or quality of the product. Nearly all fruits need the addition of sugar before being eaten, especially after being cooked, and the proper time to make this addition is when the fruit is placed in the can. The processing and subsequent standing give a blend that cannot be obtained if the sugar be added at the time of consumption. The further effect of the syrup is to secure a marked conservation of flavor, retention of better color, and to hold the shape of the fruit by giving protection in shipping.

The syrup is made to definite degrees upon a Balling or Brix scale. A 20° or 30° Balling syrup means the percentage of sugar in water, 20 or 30 pounds of sugar and 80 or 70 pounds of water in a 100 pound batch. The making of syrups on the percentage basis is much more easily understood than upon the Baumé or specific gravity scale. The testing of the syrup is done with a float or spindle.

To make a syrup of the degrees usually employed taking one gallon of water as a basis, the following amounts of sugar are added:

Water, 1 gallon

Density	*Quantity of sugar*	
Degrees, Balling	*Ounces*	*Pounds*
5	7.	.44
10	14.8	.92
15	23.5	1.47
20	30.8	1.92
25	44.5	2.8
30	57.1	3.57
35	71.8	4.48
40	88.8	5.55
45	109.	6.81
50	133.3	8.33
55	163.9	10.24
60	200.	12.5

The water and sugar should be heated to near the boiling point, thoroughly stirred to be certain that the sugar has been dissolved, then strained to remove the scum.

The syrup in the finished product can be tested in the same manner as the original, but the reading will not be strictly correct. The syrup in the finished product will contain some soluble extractives from the fruit, but these are not sufficient to seriously interfere with getting approximate results. The syrup in the finished can will not be the same as the original on account of some of the sugar going into the fruit and some of the water coming out, but there is a ratio by which it is possible to determine fairly closely what degree was used. These data are in Bulletin No. 196, United States Bureau of Chemistry.

BRINE

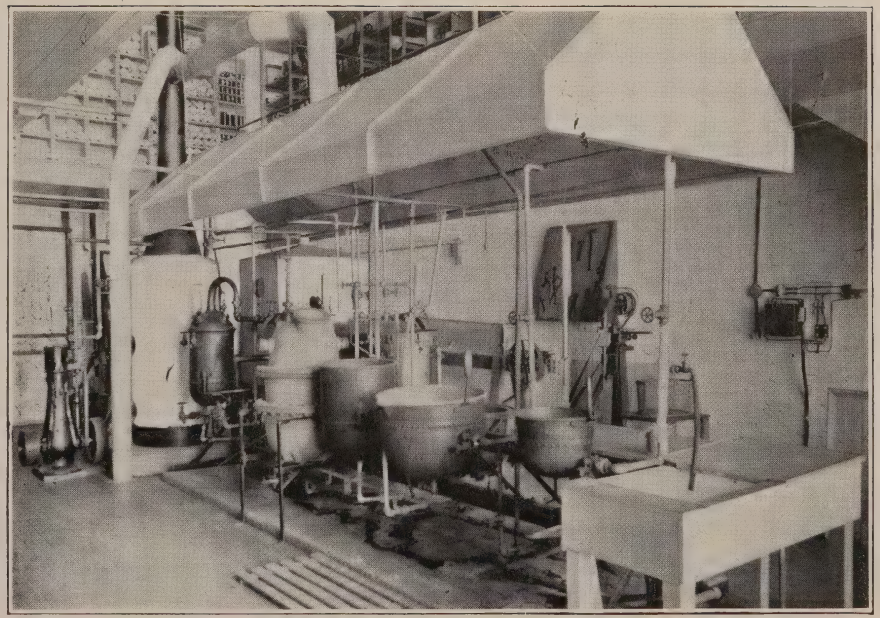
The making of brine is subject to little variation, the percentage of salt being, in most cases, between 1½ and 2 per cent. The rule is to use only a sufficient amount to

overcome the objectionable feature of lack of flavor, and that additional seasoning may be added later to suit the individual taste.

KEEPING QUALITY

There seems to be a general assumption that all canned foods deteriorate with age. This is probably true within limits, but the rate with which the change takes place may be so slow as to be scarcely appreciable within three or four years. Much depends upon the character of the product, the method of preparation, and the condition of storage. A pack of corn put up in 1916, if the crop is of exceptional quality, may easily be better in 1919 than the pack of 1917 or 1918, if the crops in these two years should be of ordinary quality. The difference in the quality of the crop may far more than offset any changes due to time. There seems to be very good evidence accumulating that fruits packed at a low temperature may actually improve in flavor while in the can, that after three or four years they are richer than at first. This is somewhat along the lines of the aging of wines. There are products, especially some highly acid fruits, which attack the container, causing loss of color and flavor in the product, dissolution of the tin and iron in appreciable quantity, and development of sufficient gas to cause springers and perforations in the cans. Improvements, in the methods of packing these products have been going on very rapidly in the past few years, so that many criticisms which were warranted on the ground of deterioration are rapidly passing. The unjust assumption was often made that what applied to a few products was equally applicable to all.

A very important point in the keeping quality of canned foods is that they be stored in a cool, dry place. Freezing causes injury to the product, dampness causes rust and perforation of cans, while a very warm temperature increases any tendency toward attack by the product upon the container.



A view in a laboratory especially equipped to study canning methods. Every preserving process may be duplicated.

FRUITS

Apples

Only good cooking apples are canned, usually of the late fall and winter varieties. They must be sound, smooth, of medium size, and free from bruises. It is preferable that they be slightly acid as they retain their flavor better than do the sweet varieties. A few are canned whole and unpeeled, in order to be served, when heated, as baked apples; some are canned whole, but peeled and cored to be used for dumplings, and some canned in halves, quarters, slices, or cooked as a sauce.

Apples are peeled or cored by hand or by power machines. They are dropped into water at once and kept covered, or, better still, placed in the cans and covered with hot water or hot syrup to prevent browning. A light syrup is preferable to water in canning.

Apple Butter

Formerly it was the practice to make apple cider, boil it down to one-half its volume, then to add about twice the volume of sliced apples and boil the whole down to a fairly heavy consistency. The process is greatly simplified at present by crushing the apples, steaming them until they are soft, and then running them through a pulping machine. This gives a heavy pulp free from seeds and skin, to which juice may be added, and then be cooked to the desired consistency. It is filled while hot into cans, sealed, and no process is required.

Apple Juice or Cider

Clean, sound apples are run through a crusher and the juice pressed out. This is run through cloth filters to remove the flocculi, then filled into cans The cans should be exhausted slowly to 160° F. (77° C.), sealed, and No. 2½ processed for twenty-five to thirty minutes at 180° F. (82° C.). This product is what is usually labeled cider and what nine-tenths of the people in the apple-growing districts understand as cider. Technically, however, the

term cider refers to juice which has undergone more or less alcoholic fermentation, though the dictionaries define cider as the expressed juice of the apple either before or after fermentation.

Apricots

The apricot is a fruit that has a very distinctive and agreeable flavor, especially when well ripened on the tree. The canning is done almost exclusively in California. The fruit is hand-picked when firm and just ready to turn soft, and is handled in shallow boxes to prevent bruising. At the factory the fruit is split and pitted and then graded for size, using screens having openings of 40, 48, 56, 64, and sometimes 68 thirty-seconds of an inch. They are further graded into prime fruit, soft fruit, and hard fruit, according to the state of ripeness. These are filled into the cans according to size and quality. The very large, prime, and evenly colored are called special extra; the next size, extra; then extra standard. The standard grade may contain some overripe, slightly blemished, and small fruit. The underripe, soft, and irregular quality are used in the lower grades, seconds, and pie stock. The syrups used on these grades are 55°, 50°, 40°, 30°, 20°, 10°, and water in the order given. Good apricots need a heavy syrup and much of that given 40° and 30° on account of size would be greatly improved if the same degree as for extra were used. Very few apricots are peeled as the labor is excessive in comparison to the amount which can be done. Some apricots, especially those which are very soft, are kettle cooked—that is, placed in a steam-jacketed kettle and cooked until soft. They may or may not be put through a pulper to remove the skins. The pulp is evaporated to the desired consistency and canned. In order to give more character, some canners add about one-third or one-fourth the volume of rather hard fruit to the pulp just before the cooking is completed. This gives whole pieces in the pulp.

Blackberries

The blackberry grows over a considerable part of the United States, but is not properly appreciated for its worth as a canning berry. It has a distinctive and excellent flavor which is well preserved in a heavy syrup. Packed in water and in plain cans, it loses color and flavor, and is unattractive.

The berries, where the best practice is followed, are picked in shallow trays and not allowed to accumulate in layers of more than $1\frac{1}{2}$ inches. They are not quite as ripe as

Type of crate used to carry berries at the canneries. It gives the maximum protection.

those eaten fresh and are handled as quickly as possible from the vine to the cannery, the hauling being done in chests to prevent bruising or marking. The trays are not used a second time as the wood becomes infected with mould and tends to inoculate fruit with which it may subsequently come in contact.

At the factory, the fruit is inspected for unfit material, leaves, stems, etc., washed and filled into the cans by weight. The cans are tapped lightly during the filling, but not sufficiently so to jam the fruit, are made level full, and syrup added to fill the interspaces.

Blueberries

Blueberries and whortleberries have become so scarce that they are nearly all consumed fresh. A few are canned in Maryland, Maine, and in northern Michigan. The berries grow wild, are brought to the local markets in almost any kind of container, and are shipped to the factories in shallow boxes. They are run through a fanning mill to remove the bits of leaves, etc., are washed, after which they are placed in open kettles, or corn cookers, and cooked with water for from four to eight minutes, and then filled into the cans and sealed. They may be given a subsequent cooking by immersing for a few minutes in boiling water. The blueberries packed in this manner are mostly used for pies. If instead of water a 30° syrup be used, they make a very good product.

Cherries

The cherries almost naturally divide themselves into two groups—the large black and white sweet cherries of the western coast, and the acid cherries of the central and eastern states. The former are nearly all packed unpitted while the reverse is true for the latter. The unpitted make the better appearance, while the pitted are the more agreeable at the table. The retention of the pit, however, gives a distinctive flavor which many persons like.

The cherries are picked with the stems attached after they have become well colored but not so soft that the pit will come away with the stem, and are handled in shallow boxes. At the factory they are hand-stemmed, and imperfect fruit culled out. Machines have been devised to remove the stems, but have not come into general use. The grading for size is done by passing the fruit over screens having openings of 22, 24, 26, 28, and 32 thirty-seconds of an inch. The pitting is done by machinery, except those packed for fancy display purposes.

After washing, the fruit is filled into cans, the average being about 20 ounces for a No. 2½ can. This necessitates tapping the can quite vigorously during the filling opera-

tion. A few canners drop the cherries into hot water at about 82° C. (180° F.) to slightly soften the fruit before filling. This also lessens the bursting of the skin in the subsequent process. Syrup of 50°, 40°, 30°, 20°, 10°, and water are used according to the size of the fruit in order to give special extra, extra, extra standard, standard, seconds, and water or pie grades. The pitted fruit is usually packed in either 50° syrup or in water.

Figs

Whole figs are packed in South Carolina, Mississippi, Louisiana, and Texas. Some of the figs are not skinned, but after washing are placed in cans as tightly as they can be laid and heavy syrup added. Some are immersed in a hot but weak lye bath, then washed under jets of water to remove the rougher outer portion of the skin. They may then be filled into cans and syrup added. The majority are kettle cooked in sugar until they are a preserve and then filled into cans. The fig, though a weakly acid fruit, needs a rather heavy syrup to bring out the distinctive flavor.

Gooseberries

The gooseberry was once highly esteemed for pies, but only a few are grown at present. The berries are picked when nearly full grown, but green. They are stemmed by a machine and filled into cans with water. They are very acid.

Grapes

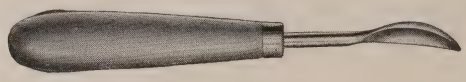
There is a decided preference for the white grape over the colored for canning. In the East the Niagara grape is used, and on the West coast, the Muscat. The flavor is unlike in these two varieties, the Muscat being distinctive and unlike any other. The stemming of the grapes is done by hand, after which they are washed and graded for size over screens having holes of 20, 21, 25, and 26 thirty-seconds of an inch. The syrups used on the Muscats are 40°, 30°, 20°, 15°, 10°, and water. The same attention is not paid to grading in the East, each packer using what he deems to be sufficient.

Loganberries

The loganberry is the result of a cross between the blackberry and the red raspberry. It has the size and shape of the large blackberry, the color and texture of the red raspberry, and the flavor of both. It is very highly acid. It is handled and packed the same as the blackberry.

Peaches

The peach is the most popular fruit that is canned and leads all the others in volume and in value. About 85 per cent of the pack is put up in California. The growing of peaches for canning is a business in itself as only varieties can be used that have the proper size, texture, and flavor, and will hold these after processing. Some peaches are excellent when eaten fresh that are a failure when canned. It is also necessary to have the varieties mature in succession to give a long period for work. The fruit must be hand

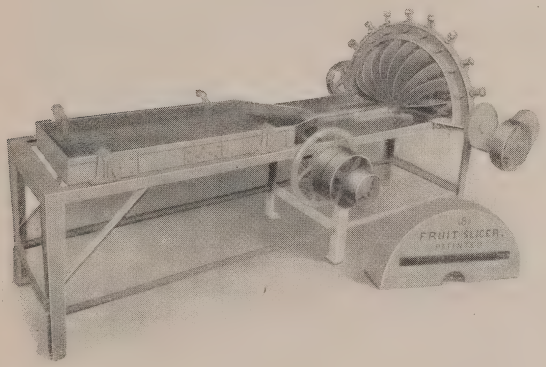


Peach pitting spoon.

picked and handled from the orchard to the factory in shallow lug boxes to prevent bruising. The peach should be picked when just beginning to turn soft.

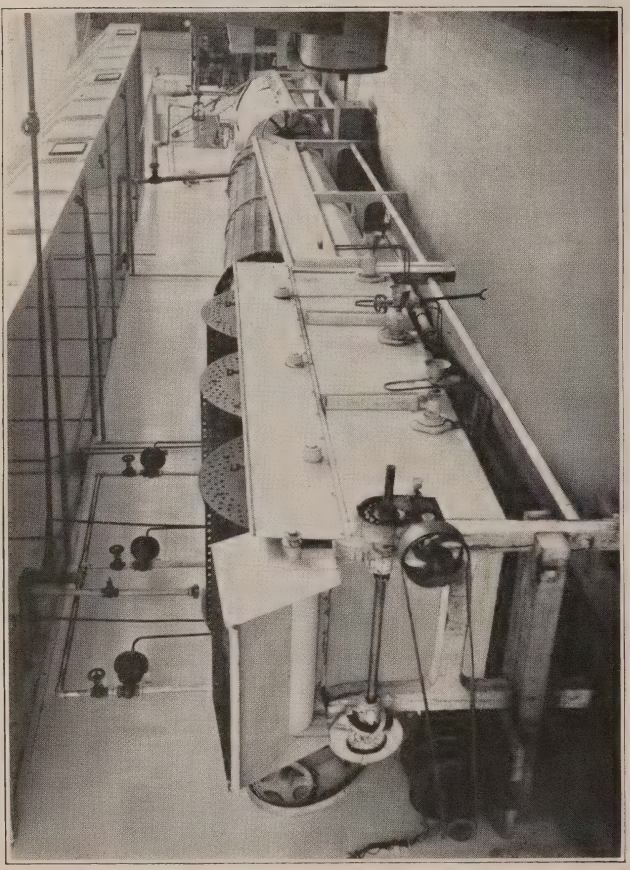
The first operation at the factory consists in splitting and pitting the peach. A cut is made entirely around and to the pit on the line of cleavage. Next, the pitting spoon is inserted, the halves separated, and the pit removed. This should be done without marking the fruit. The pitters pass the halves into pans according to whether they are prime, over-ripe, or under-ripe. The next step is the peeling, and this may be done by hand, using a special knife, or by means of hot lye and subsequent washing. The latter method is superseding the former because of economy and of being more sanitary. Formerly there were objections

to this method, due in some measure to improper usage. The method consists in first dropping the peaches into scalding water for about twenty seconds to blister or cauterize the surface, after which they pass into scalding lye for a like period, the solution containing about one-fourth of a pound concentrated lye to the gallon of water and then for a like period into a second bath of about one-ninth of a pound of lye to a gallon of water. The treatment loosens the peel, and they are then given a most thorough



The slicing machine will cut two bushels of fruit per minute, and do it accurately.

washing under jets of water, or are dropped into running water a number of times. Tests show that all traces of lye are removed with the thin layer that comes away, and that there is no injury to the fruit. The fruit is next run through a blancher and heated sufficiently to make it slightly flexible as this aids materially in securing a good, uniform fill. The fruit is then graded for size by passing over screens having openings of 64, 68, 72, and 76 thirty-seconds of an inch. Those failing to pass through the largest holes are sliced, being too large to pack in halves.

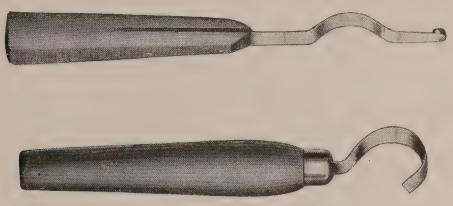


Machine for lye-peeling, washing, and blanching. A small machine will do the work of a hundred persons.

The grades are special extra, extra, extra standard and standard, according to size, and seconds and pie based on the condition of the fruit, whether over-ripe, green, bruised, or badly trimmed. The syrup which goes with the grades is 55°, 40°, 30°, 20°, 10°, and water. A few are canned whole in heavy syrup and are called Melba peaches.

Pears

The Bartlett pear is preferred to the other varieties for canning, due to its size, fine texture, and excellent flavor. It belongs to the soft type of pear as distinguished from the hard or Keifer type. The fruit is hand picked while still



Knives of special design are required for neat peeling and coring of fruits.

hard and allowed to soften in the boxes after it reaches the factory, otherwise the handling and hauling would cause bruising which would brown very rapidly. The peeling is done by a special guard knife, the splitting done by a plain knife, and the core removed by a curved coring knife. The requirements are that the fruit be nicely peeled, evenly divided into halves, and cored so as to remove all the coarse fiber and seed cells without cutting away any of the edible portion. This necessitates careful manipulation and skill, which is acquired only after long experience. The grading of the fruit is all done by hand at the time of peeling and by those who fill the cans. The fruit must be

kept submerged in water after it is peeled to keep discoloration at the minimum.

The pears must be filled into the cans by hand as it is necessary to layer the larger sizes to obtain the proper fill. The special-extra grade calls for eight or nine perfect pieces; the extra, eight to twelve pieces; extra-standard, nine to fourteen pieces; and standard, twelve to eighteen pieces. The seconds and water may be any size, irregularly cut pieces, soft and hard. The syrups used are 40°, 30°, 20°, 15°, and 10°, and water. A 40° syrup is rather too sweet as the pear is low in acidity.

Pineapple

Pineapple packing has been taken to the Hawaiian Islands in response to the necessity for locating the factory at the source of fruit production, to be assured of prime material. Formerly the pines were brought from Cuba to eastern factories, which meant that the fruit had to be picked very green, and also that more or less deterioration took place. On the Hawaiian Islands, the effort is to cut the fruit in as an advanced condition as possible and to get it into the cans within thirty-six hours.

The fruit is first trimmed top and butt and then run through a sizing and slicing machine which cuts the fruit to slightly less than the diameter of the can and in cross-sections so that eight pieces will make the proper fill. The core is removed at the same operation. The slices are inspected as they pass along on a belt to the filling tables. Those which are perfect with the eyes fully developed, of fine texture, and good color are passed as extra; those having the same characteristics but a little greener and lighter in color, become extra-standard; those with some imperfect eyes, irregularities in color, or slight defects in cutting, become standard; and tops, butts, torn pieces, soft and hard, become seconds and water. A 50° syrup is used on both extra and extra-standard, and 40° syrup on the standard. The pineapple, though naturally high in sugar, requires a heavy syrup. Crushed pineapples come in two grades:

that made from the excessively large fruit and that made from small fruits, tops, butts, and defective slices. The small disks from the core are packed for confectioners' use.

Plums

The plum is one of the fruit staples, though the quantity required to meet the demand is not large. The green-gage, yellow egg, and Lombard are the varieties mostly used. The plums are handled to the factory like apricots. They are stemmed, washed, graded for size over screens having openings of 32, 40, 48, and 56 thirty-seconds of an inch, and are filled into the cans by hand, as it requires close packing to get the proper fill. The grades are extra, extra-standard, standard, seconds, and water, according to size and quality, and the syrups used to correspond are 40°, 30°, 20°, 10°, and water. The green-gage plums have a somewhat tougher skin and hold their shape better than the other varieties. The fresh prune, which is a variety of plum, as grown in Idaho, produces an article that has more of the damson flavor and that gives a beautiful brilliant color to the syrup. These are not found upon the market at present.

Prunes

Canned cured prunes, while not a new product, are not generally known to be upon the market. Cured prunes when canned give a different product from the fresh and also very different from the cured prune as stewed in the home. Cured prunes are graded for size, washed, and gently steamed for from five to fifteen minutes. They are then picked over for splits or marked fruit, filled into the cans by weight, and a 20° to 30° syrup added. They are given a process of about one hour, and allowed to cool very slowly. The fruit becomes very tender and conserves a delicious flavor that is lost in the regular method of home preparation. The broken or marked fruit if pitted and run through a food chopper makes a delicious jam or basis for soufflés.

Raspberries

Both the red and black varieties of raspberries are used, but are kept separate. The handling and treatment are the same as described under blackberries.

Strawberries

The strawberry used for canning should be of moderate size, of good color, firm, but not too acid. They should be stemmed and particular attention given to washing. The other treatment is the same as for blackberries.

Olives

The canned ripe olive has been used in this country almost exclusively as a condiment, owing partly to price, and partly to the irregularity of the product. It has unusually high nutritive value and a peculiar pleasing taste, two elements which commend it as a food, provided the consumer can depend upon getting these qualities. The methods of packing are in a more or less experimental stage and improvement is constantly being made.

The mission olive is preferred for canning owing to the superior flavor and better texture. Olives are picked when as nearly ripe as the handling will permit. If under-ripe, the pulp is rather "woody" and there is the absence of the rich oily, nutty flavor that is so much desired. If picked too ripe, the olives bruise too easily. They are hand-graded for quality and sorted for size by a special machine. The next step, the curing, is the most important in the entire operation. The treatment starts with soaking the olives in a weak solution of lye to remove the bitter, astringent principle. This treatment requires a day or two, during which time the olives are taken out and returned to the solution a number of times and the strength of the solution altered according to the condition of the fruit and the rate with which the lye penetrates to the pit. This work requires skill as no tests have been developed to serve as a safe guide. As soon as the olives have been acted upon sufficiently, they are soaked in cold water for

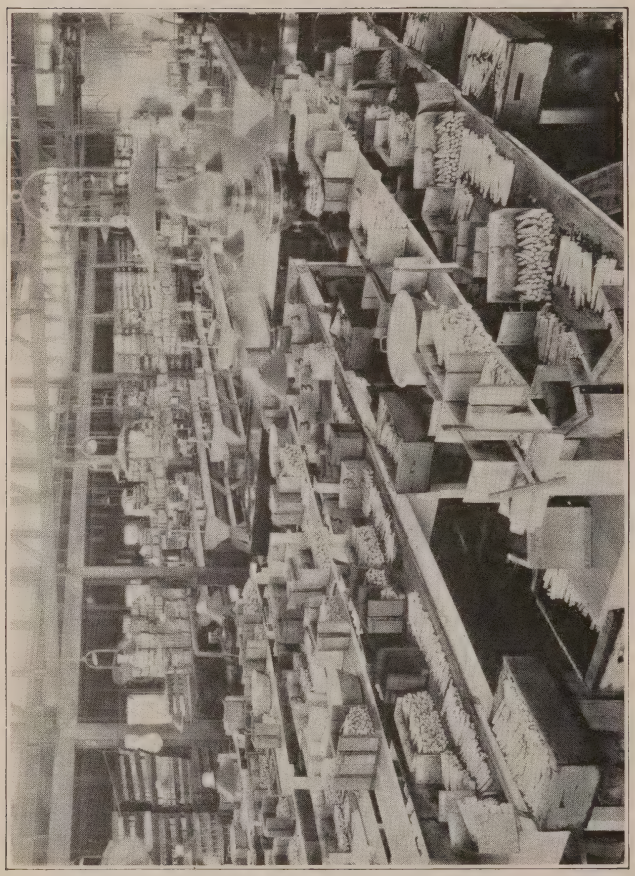
several days to remove the lye, and then placed in brine. The time for curing varies from fourteen to twenty-five days after which the olives are canned in weak brine.

VEGETABLES

Asparagus

More than 90 per cent of the asparagus packed in the United States is grown and canned in a small district in California. The conditions for growth both in soil and climate are ideal. The long tender stalks as they break through the ground are in the condition when metabolic changes take place very quickly, so they must be packed immediately to preserve them at their best. This has necessitated erecting the factories near the beds. Asparagus, such as that shipped across the continent and sold fresh cannot be used.

The asparagus beds are gone over every day or every other day and the stalks cut just as they begin to show through the ground. If the stalk is cut before the tip has been exposed to sunlight, it will be white; if it projects through the ground an inch or more, it will become green. Some persons like the white, and others prefer the green, so both are canned. The stalk is seized at the tip and cut off a distance of 8 inches or more below the surface by means of a special chisel-like knife. When sufficient quantities have been cut, they are collected and taken to some convenient point, packed in forms, and the stalks trimmed to a uniform length of 7½ inches. They are washed to prevent any staining from the soil and carefully layered in lug boxes to be taken to the factory. The first operation is to grade for size; the very large, known as giant, requires about fourteen stalks; mammoth, from twenty to twenty-two; large, from thirty to thirty-four; medium, about forty; and the small, about fifty stalks per can. The grading is done by hand, judging entirely by appearance. That which is intended for the No. 2½ tall square can is cut to 5½ inches; for the No. 1 tall and No. 2 round, cut to 4 inches; and for the tips, 3 inches. The stalks are blanched,



View in an asparagus cannery.

after which they are again graded into white and green. Some of the very large stalks are peeled, some scraped, and some brushed, the treatment being based on the condition. The stalks are placed in the cans, after which brine is added, and the processing done in the retort. There is no other vegetable or fruit which requires approximately the same amount of hand-work, so it is necessarily expensive. The practice of the better packers is to can each day's cutting as it is brought to the factory, and not to allow any to stand over night.

Artichokes

Only a few artichokes are packed and these are used almost exclusively in the hotel trade. The difficulty has been that they turn dark and become unattractive in appearance, though the flavor may be unchanged. The heads are selected and the coarser outer leaves cut off. They are blanched until tender, then the leaves are tied together to make a compact head. They are packed in the can and brine added, and are processed in a closed retort. The domestic artichokes have a thicker and more edible pulp on the base of the leaves than those which are imported.

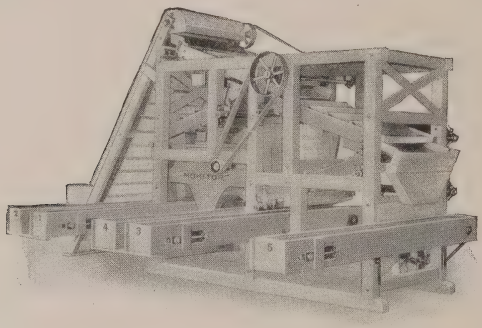
Artichoke Hearts

The base of the flower is $1\frac{1}{4}$ inches or more in diameter and nearly $\frac{1}{2}$ of an inch thick when the leaves are removed. These are esteemed as a delicacy, and after being trimmed are handled in essentially the same manner as the whole head.

Beans

Green or string beans are rapidly becoming a staple food the same as peas. The only drawback is the large amount of work necessary for their harvesting and preparation. The harvesting is strictly a hand-picking job, as is also the snipping, as no machine has been developed which is satisfactory for either operation. The beans are picked while they are young and tender, preferably while they are less than 4 inches in length and less than $\frac{3}{8}$ of an inch in

diameter. They are taken to the factory as promptly as possible and snipped. Some varieties have been developed which are practically stringless when young and fresh. The string becomes much more pronounced on standing and in mature pods. The beans are graded by special machines, the grades being determined by the thickness. The long beans and coarse beans are run through a cutter to obtain the proper length. The beans are blanched to make them tender, and are filled into the cans by a shaking machine, after which brine is added, and they are processed.



Machine for grading beans according to size.

Wax Beans

Wax beans are handled in the same way as the string beans, but more attention is paid to sorting as the presence of spots becomes very objectionable.

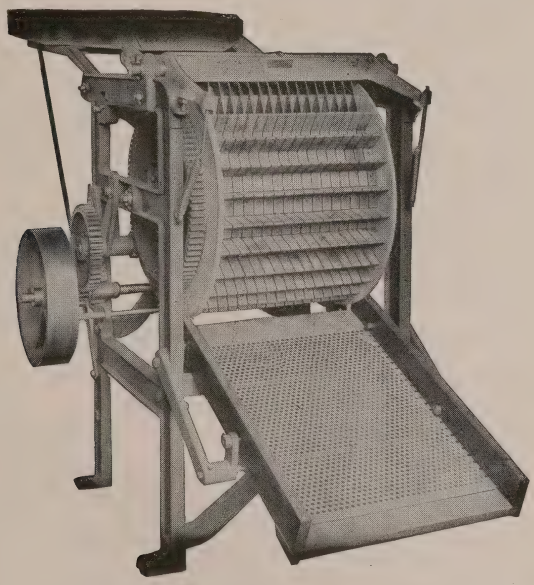
Lima Beans

There are two varieties of lima beans, the long vine, or pole variety, and the bush variety; the former is grown extensively, in southern California, and the latter in the eastern states. The former is used mostly as a dry bean and the latter for canning green. For canning, the crop is harvested when the majority of the beans are in prime condition, the vines being pulled or cut and hauled to the

factory and the beans shelled in a pea viner. The beans are then run over a grader having holes of 20, 30, 31, and 32 thirty-seconds of an inch in diameter. The very large ones may become rather starchy and have the appearance of soaked beans. The beans are blanched, filled into cans, and brine added. In sections where corn and lima beans mature together, this variety is preferred for use in succotash.

Soaked Lima Beans

The California lima bean is sometimes soaked and canned. When the beans are cut early and carefully dried, they make an excellent product and are preferred by some persons to the green. They are also used in place of



Machine for cutting fruits and vegetables into exact lengths.

the green in succotash, but the fact that soaking is done must be declared upon the label If the soaking be done in cold water, it is usually for a period of 12 to 16 hours, if in warm water, about 4 hours. A longer blanch is required than for the green beans.

Beets

Beets used for canning should be of a uniform deep red color throughout, those having red and white layers are unsuitable. Beets are usually grown so as to mature late in the season in order that they may have the advantage of developing while it is cool and also that they remain small. They are graded for size into those less than 1 inch in diameter; from 1 to 1½ inches; from 1½ to 2 inches; and those above 2 inches Those above 2 inches are cut or sliced. The washed beets are placed in a retort and steamed for about twenty minutes at 220° F. (104.5 C.) in order to loosen the skin. They are then peeled, filled into cans, and brine added. If the beets are thin skinned and tender, cooking them in boiling water will suffice instead of steaming in the retort.

Carrots

Carrots are canned principally for use in soup stock, or for hotels and restaurants. Those used for canning should be not more than 1 inch in diameter. They are washed, scraped carefully, rewashed, and cut to the length of the can and packed like sweet potatoes, or cut into small slices or dice, and the interspaces filled with brine.

Corn

Corn is one of the three large staple canned foods. It is packed in Maine and from New York to Minnesota and as far south as Maryland and Missouri. The greatest center of production is in Illinois. Sweet corn only is used, but some of the varieties are so large and coarse that when only a small quantity is present it has been suspected to be field corn. There are two types, the long peg-like grain known as shoe-peg, and the large broad grain arranged in rows. The

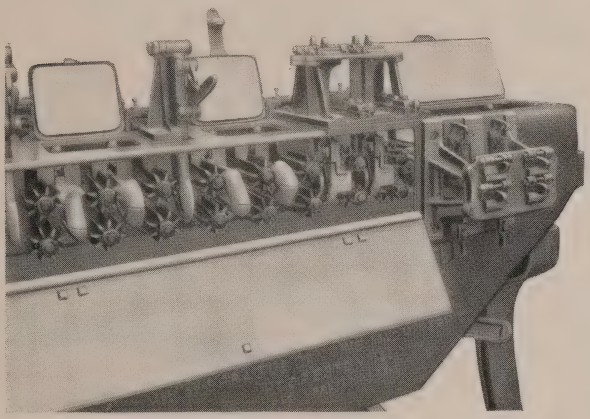
Corn arriving at a factory; 1,000,000 ears per day are used in packing 240,000 cans.

Corn-husking machine; eliminates the drudgery of husking by hand.

former is the smaller yielder, but owing to the compact arrangement of the kernels on the cob and the relatively small end exposed to harden, there is less tough hull on the grain. There is not much difference in sweetness if both are cut at the right time.

The corn is grown in large tracts the same as field corn. When it reaches the proper stage of maturity, it is snapped from the stalk and loaded on wagons. At the factory it is dumped on a conveyor which carries it to the different hoppers of the husking machines, or distributes it to the huskers. After the husking, the corn is inspected as it passes along a belt, and the extra-hard and the very soft and defective ears are held out. The ears pass through a silking machine to remove adherent silk and bits of husk, then under sprays of water, and finally are ready for the cutter. The corn is fed into a machine which has semi-circular knives so mounted that they will open and close

to fit the size of the cob and will remove the kernels from all sides. Immediately behind the cutters are the scrapers which remove the small tips adherent to the cob. Different procedures are followed in cutting. In what is known as the Maryland style, the kernel is cut very close to the cob and no scraping done. This gives a canned corn with nearly whole grain, each kernel being separate in the brine. In the so-called cream corn or Maine style, the grains may or may not be cut close to the cob, but are scraped to remove the

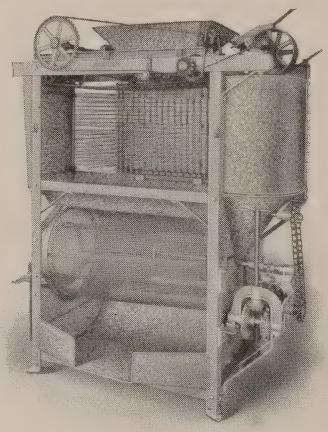


The cutters in a corn cutting machine.

adherent portion. This gives a creamy consistency and is thick or thin depending upon the water added and the condition of the starch in the grain. In order to get a very fine consistency, the cutting may be done in such a manner that the outer end of the grain is cut off first and then the lower by what is known as double cutting or recutting. In a style known as hull-less corn, the ends of the kernels are slit and the contents squeezed out. A final method is to pass the corn through a cyclone, removing all the hull, thus producing a fine green meal mush, kornlet. While it

is but natural that the corn should be cut close to the cob, especially in the Maine style, there may be a disadvantage, especially with that which is a little old or has been allowed to stand after gathering in the field, as the chaff from the cob acquires a very noticeable bitterness.

After the corn is cut, it is run through a cleaner which removes bits of cob, husk, and silk. It is then passed to the mixer and the proper amount of water, bearing sugar and



Silking and cleaning machine, combs the corn to remove bits of silk, husk, or cob.

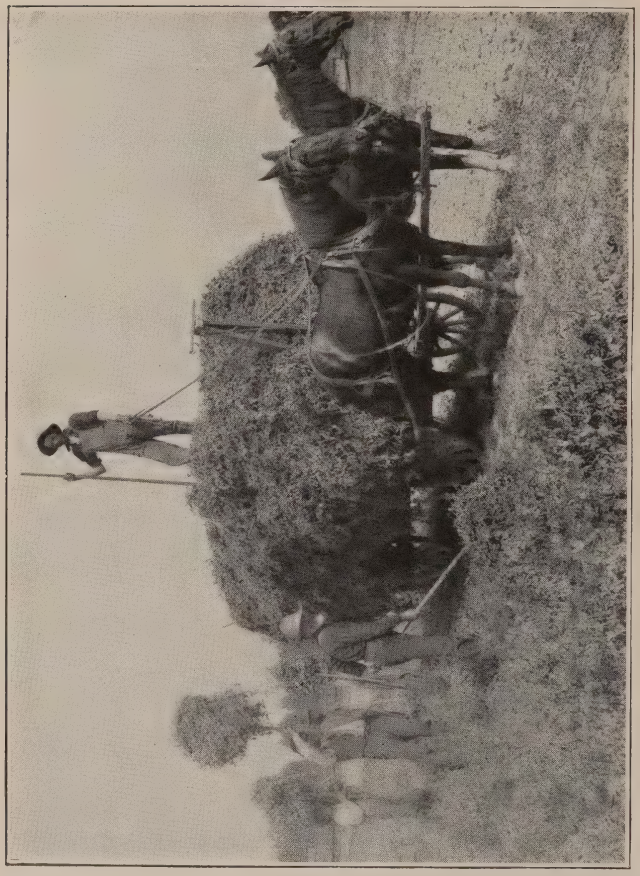
salt in solution, is thoroughly stirred through the mass. It is then run into the cooker and filler. Though the process seems rather long and complicated, these steps are all accomplished without hand-work, except that of feeding the husker and cutter; they follow in such rapid succession that from the time the ear goes into the husker until the corn is in the can, sealed, and ready for the retort, may not be more than fifteen minutes.

Okra

Okra is a constituent of nearly all gumbos and is used extensively in southern cookery, though it is not generally known in the North. The packing is largely in gallon cans for stock for the soup manufacturer, though the small can is coming into use for home consumption as its character becomes better known. The young tender pods are washed, the stem end cut off, the remainder of the pods filled into the cans, and brine added. They may be cut transversely into short lengths as it is not easy to cut them after canning. They are processed the same as beans.

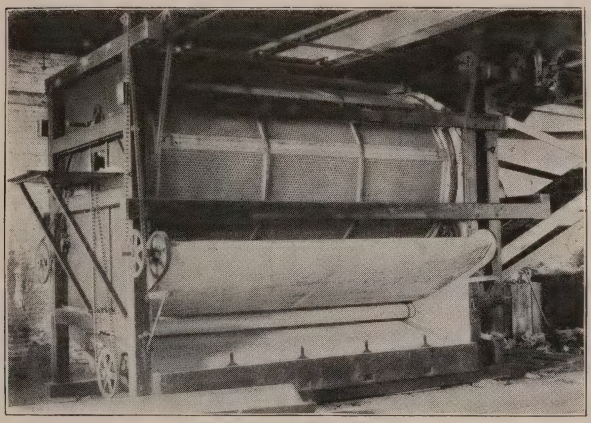
Peas

The growing of peas in fields of hundreds of acres as compared with the little plot in the kitchen garden is not in greater contrast than that in the methods of handling in the factory and kitchen. Peas are grown for canning from New York south to Maryland, west to Illinois and Wisconsin, and in a few places in Colorado, Utah, and California. There are two types; the smooth and the sweet wrinkled. The peas are harvested in June, July, and August. When the majority of the peas are in prime condition, the whole plant is cut with either the ordinary mowing machine or a special pea harvester. They are loaded on wagons the same as hay and at the factory are fed into a machine known as a viner which threshes them out of the pods and makes the separation as clean as wheat from straw. The peas are run through a fanning mill to blow out bits of stems, leaves, and pods, after which they are washed under jets of water in a large wire cylinder known as a squirrel cage, and are then passed through a sizer to separate them into five sizes. The standard holes are 18, 20, 22, and 26 sixty-fourths of an inch in diameter, and the peas are known as petit pois, extra sifted, sifted, early June, and marrow fat, in the same order respectively, the marrow fat peas passing over the screen. With very large sweet wrinkled peas one more screen may be used, 28 sixty-fourths of an inch, and those which remain above



Peas are handled by wagon loads.

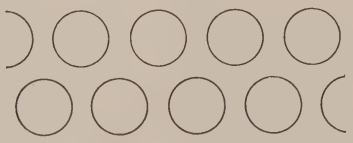
are known as telephone. The terms "petit pois," "extra fins," and "fins" were originally from the French and refer to the size of the pea and not to the variety. In addition to sizing, which is practically standard in all pea canneries, there are some canners who grade all or part of the sizes for quality. The peas do not mature alike, the lower pods are always somewhat more advanced than the topmost, and some plants are always more advanced than others



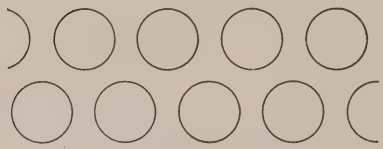
Pea viner; shells as many peas in a day as 200 or more persons and with less bruising and no touching by hand.

in the same field. It happens that old peas are heavier than the young and that an approximate separation can be made by floating the peas first in a weak salt brine, and then in a stronger one. Those which float in the first brine will be tender, those which float on the second brine somewhat harder, and those which go to the bottom are very hard. Automatic machinery has been devised to do this work easily and with considerable accuracy. The prod-

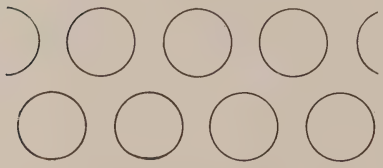
uct of a load of peas may be divided into from five to fifteen grades upon size and quality. Some peas are packed ungraded, and the proportion thus packed is increasing. The percentage of the different grades varies with the variety, the rapidity with which the crop matures, and the state of maturity. The small size, petit pois, is always the least abundant and the early June the most abundant.



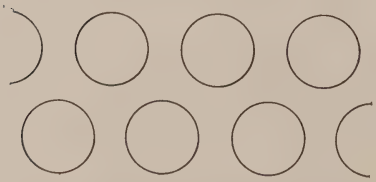
Screen for petit pois



Screen for extra sifted peas



Screen for sifted peas



Screen for early June peas; Marrow-fat peas remain above this screen

The very small ones bring the highest price, though the sifted pea probably has the best balanced pea flavor of the graded sizes, and the ungraded is probably the best of all.

The peas are blanched according to their age and size. The very young tender peas need scarcely be more than dipped into boiling water, one and one-half to two minutes being ample, while the very old hard ones may need twenty minutes. The time should be sufficient to make all peas tender, otherwise they will remain hard in processing. The blanching is usually done in a continuous manner, the machine being built to take the raw peas at one end of the cooker, and deliver them at the other ready for the can. The mechanism is usually a tank containing hot water and within which is a drum containing a screw devised to carry the peas through in a determined time. The water is constantly renewed and the temperature maintained by means of controllers. The peas are filled into cans by machines which deliver exact quantities and then add the necessary hot brine. They are processed in a retort.

Chilis

The long green sweet chili pepper raised in southern California and known as California chili is highly esteemed by Mexicans and those who like the Mexican or so-called Spanish style of cookery. These chilis are not strongly pungent and are canned both green and ripe, but preferably in the green condition. The Mexican chili is not canned. The chilis are picked when full grown but before any tint of red develops. They must be handled very rapidly from the field to the factory. The first operation is to either roast the pods or drop them into hot oil to loosen the skin from the fleshy portion. As soon as they are cool enough to handle, the outer skin is stripped, the stem picked off, and the seeds may or may not be pressed out. The fleshy portion is left as nearly whole as possible. It is washed, then folded upon itself, put into cans, and a small quantity of brine added.

Pimienta

For a time the canned pimienta came from Spain, but a domestic product equal in every respect is now on the market. The pimienta is a fleshy sweet pepper from 3 to 4 inches long and about 2½ inches across at the base. They are not very pungent. Unlike the chilis, the pimienta is canned when well colored, the method being essentially the same.

Pumpkins

Pumpkins are generally grown as a catch crop in the corn field but, when raised for canning purposes, as a special crop in open fields. It is necessary that the pumpkins color and ripen evenly all over, a condition which is hindered by the shading of the corn stalks. The harvesting takes place late in the fall after other crops are out of the way. The pumpkins are washed, cut in large slices, a couple of inches or more in width, placed in crates and steamed in the retort until soft. They are then run through a cyclone which removes the shell and fiber leaving a smooth even pulp. This is cooked to the proper consistency, filled into cans and processed. A small quantity of pumpkin is spiced when packed. The effect of cooking the spice in at the time of canning is better than making the addition at the time of using, but as the amount and character of the spicing is so largely a matter of taste, most packers prefer to omit this detail.

Rhubarb

Rhubarb is grown as a field crop for canning purposes. It is planted upon very rich soil in order to secure a luxuriant growth of leaf stalk. The harvesting is done from May until August. The leaf stalk is broken at the level of the ground and then trimmed at both upper and lower ends. At the factory the stalks are washed and cut transversely into regular lengths of about ¾ of an inch. The cans are filled tightly and water or syrup added. As sugar is necessary in using, it is better that this be added at the time of canning. Rhubarb should be canned in glass.

Spinach

Spinach, though a comparatively recent addition to the list of canned vegetables, is growing in popularity. The plants are grown in drill rows, or the seed sown broadcast. There are two crops: an early spring crop, in May, and a late fall crop, in October. The plants are cut when the leaves are crisp and tender, usually before they have reached a height of 10 inches. At the factory the leaves are separated from the stems and the yellow leaves and coarse parts discarded. Next comes the very important operation of washing. This must be of the most thorough character, as the plants are low, and usually grown upon a light sandy loam and are prone to carry more or less grit. Heavy sprays of water are used and the spinach passed through the washer in small quantities at a time so that clumps cannot form and thus prevent the exposure of every leaf. The blanching is carried on for about three minutes, after which the leaves are filled into cans, brine added, and processed.

Squash

This is treated the same as pumpkin.

Sweet Potatoes

Sweet potatoes are a perishable product as compared with the white potato. They bruise easily, start decay, and discolor at the points where rootlets emerge. They will not keep well under the same conditions as the white potato, so that canning is a desirable method of preserving them. The potatoes are canned as soon as possible after digging as there is a large increase in waste in skin and on discoloration upon standing. The potatoes are sorted according to their size, those under 1 inch in diameter in one grade, and those above 1 inch in another, and then may be peeled by subjecting them to steaming in a retort or to lye-peeling. The smaller-sized potatoes are given a steaming, varying from 220° to 240° F. (104° to 116° C.) from eight to fifteen minutes, depending upon their condition; the larger potatoes are steamed a little longer, the

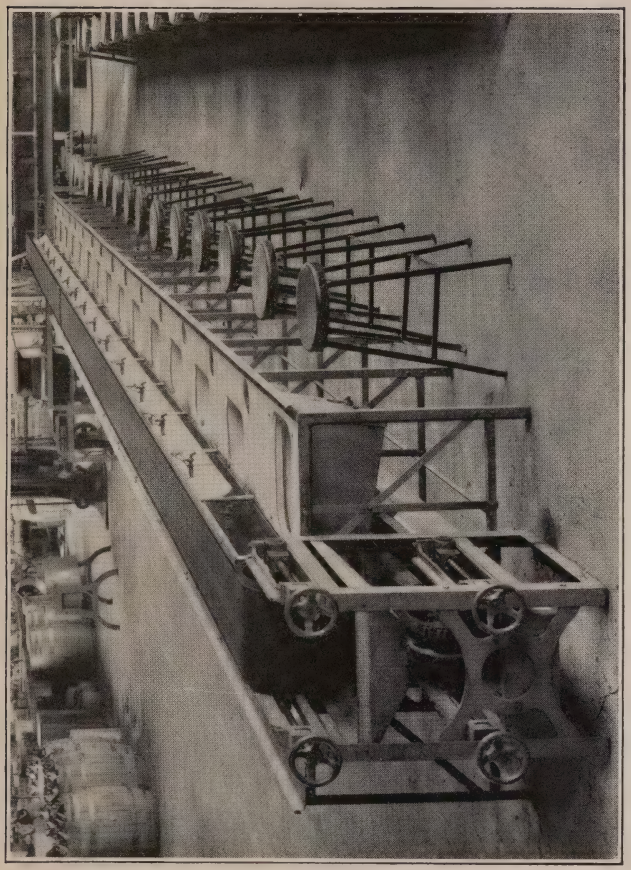
steaming being continued until the skin will slip easily, and the potato be about half-cooked. The skins are pinched off as soon as the potatoes are cool enough to be handled, and the potatoes are then packed into the cans as quickly as possible. For a fancy pack the potatoes are layered more or less, but for a standard pack the cans are stuffed. The pack should be tight to avoid any air space as the presence of air will cause more or less discoloration. The exhaust should be very hot as the heat penetrates slowly and should be continued for a longer time than for any o her vegetable. They are processed for about three hours in boiling water, as there is loss of color on processing at higher temperatures.

Tomatoes

The needs of a boarding school are reputed to be responsible for the first effort to pack tomatoes. Success attended the first experiment and from it has grown an industry of very large proportions. The tomato and the sundry products made from it head the list of canned vegetables. The plant is grown over a very large part of the country and the fruit is so easily canned that packing is done in the home, and in the small cannery as well as in the large one where hundreds of tons of fruit are used each day. The great growing centers are Maryland, Delaware, New Jersey, Virginia, southern Ohio, Indiana, western New York, and central California.

The crop is field grown and yields from 2 to 20 tons of fruit per acre. The varieties chosen should preferably have a good, clean, red color, produce fruit of moderate size, be smooth, and ripen evenly all over. Fruit of excessive size does not fill into the can well, that which is wrinkled is difficult to peel, and that which fails to ripen at the base produces excessive waste. The average waste on packing is about 50 per cent.

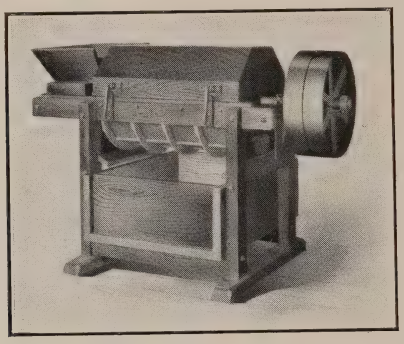
The harvesting is done when the fruit is fully ripe upon the vine. The fruit is collected in shallow crates, brought to the factory at once, and the packing done in the shortest



A tomato peeling table.

possible time. The tomato is a delicate fruit and will not keep for more than a few days after picking if vine-ripened, and unless vine-ripened, it does not develop its characteristic flavor.

The first operation at the factory is hand-sorting the tomatoes as they pass over a belt to the washer. All defective fruit and that which will not can without undue waste or labor in preparation is culled out, and from the latter the sound stock can be used for pulp or purée. The washing should be most thorough, preferably first by



Pulping machine, capable of straining a thousand or more gallons of tomato juice per hour.

dumping into water and then under strong sprays to cause the removal of dirt. The tomatoes are then scalded in steam or hot water and are ready for the peelers. The steam or water is kept very hot in order to blister the skin before the heat has time to penetrate into the fruit. The scalded fruit is handled usually in shallow pans, the skins are stripped from the blossom end toward the stem, and the core removed with the minimum of cutting of the seed cells. The cans are filled either by hand or machine, the former method being used chiefly upon fancy goods.

A solid pack of tomatoes means that the cans are filled with whole tomatoes or large pieces and no water or juice added. Tomatoes are also packed by filling the can with whole fruit and adding juice to fill the inter-spaces. A third class of packers use part whole fruit and part purée, but must make the declaration "tomatoes and purée," upon the label. Tomatoes are also packed in combination with beans, chilis, corn, and okra.

The small, irregular, and over-sized stock can best be made directly into purée or soup. The tomatoes are washed, scalded, run through a cyclone which separates the skins, cores, seeds, etc., and is concentrated to from one-half to one-third the original volume, and then run through a finishing machine to remove every trace of roughness or fiber, when it is ready for the can. In many respects this is the ideal method as it requires the minimum of hand labor, reduces the volume of handling in cans and in freight, and is ready for immediate use for the making of soups, etc. In the use of canned tomatoes in the kitchen the first operation is nearly always that of running the fruit through a colander and this operation as well as the concentration can be done best by special machinery.

Turnips

Canned turnips are used almost exclusively in hotels, though there is no good reason why they should not come into more general use They are of good quality, inexpensive, and convenient for preparation. The seed is sown to produce a crop late in the fall when the weather is cool. They are harvested when of small size, preferably less than $1\frac{1}{2}$ inches in diameter and are sweet and tender. They are washed and scraped, filled into the cans with brine, and processed.

MARINE PRODUCTS

Clams

A very few soft clams are canned on the eastern coast, but the demand for the fresh ones has made the price almost prohibitive for packing. The process consists in

washing the clams, then dipping them into hot water or steaming them until the shells open, removing the clam, cutting off the foot, and filling into the cans. The interspaces are filled with a salt brine.

Clam Chowder

This is an exceedingly variable product depending upon the proportion and the ingredients used. The usual ingredients are a small bit of pickled pork, potatoes, onions, clams, milk, and seasoning. As this is in reality a heavy stew, it admits of very wide latitude in preparation. In most cases the milk is omitted, and it is expected that it will be added when ready to serve.

Minced Razor Clams

The largest clam industry is now located upon the western coast in Washington and Oregon. The razor clam which is large and somewhat cylindrical in shape is found in considerable quantities on the beach. They are caught immediately after the tide goes out, before they get into their burrows. They are not dug like the eastern clam as they go down too deep.

The clams are first washed under sprays of water to remove the loose sand, and are then passed upon an endless belt which conveys them through hot water to loosen them from the shell. As they come away from the scalder, they are run over a shaker which detaches the greater portion of the shells. They are sprayed with cold water to cool them for handling. The clam is opened, the black is cut out, and they are again sprayed. An operator then takes a pair of scissors, splits the clam, cuts off the tip of the foot, removes whatever sand may be in the foot, and then removes the stomach. After another washing, the clam is run through a cutting machine where it is divided into small pieces or minced, filled into cans, and brine added.

Crabs

The packing of crabs is almost exclusively confined to the Virginia coast, as the supply in other waters is little

more than that demanded for the fresh trade. The principal catch is from April until October. The crabs are placed in large iron crates and dipped into boiling water or run into a steam box for about twenty-five minutes. When cool, they are stripped; that is, the shell, viscera, and smaller claws are removed. The meat is then picked out of the bodies. A centrifugal is sometimes employed, also compressed air, but these have not superseded the older method. The meat is filled into the cans and then processed. For a particularly fancy article only the large white pieces are used. The darker colored meat is just as good though not so attractive in appearance.

Oysters

Oysters are canned along Chesapeake Bay, around Savannah, Georgia, and on the Gulf Coast. Their use as a canned food has diminished since the introduction of improved methods of shipment by refrigeration. This has not only improved the quality of the fresh oysters, but greatly lengthened the period of consumption.

The oyster is taken from the reefs in deep water by dredges, and in shallow water by tongs. The dredge is a kind of iron scoop that is dragged along on the reef by the boat, and when filled, is raised to the deck by means of a windlass. The dredge, when loaded, will hold about a half-barrel. The tongs are much like a pair of large garden rakes hinged so that the teeth come together when closed. They can be used only in shallow water.

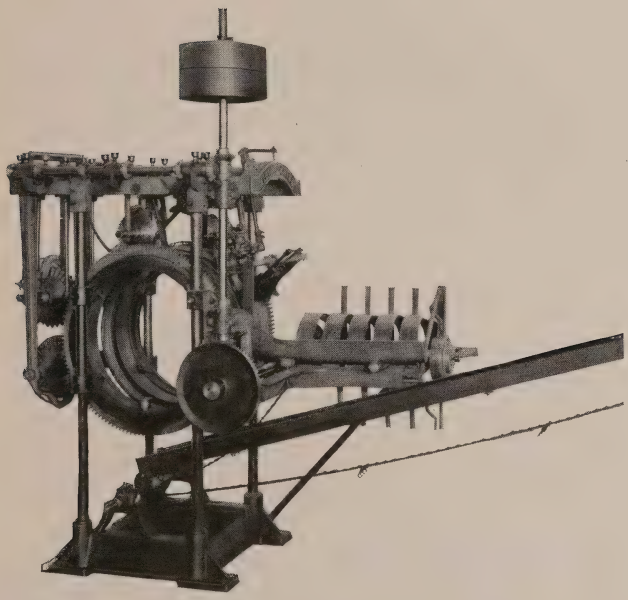
When a load of oysters has been secured, they are taken to the factory and unloaded into iron cars, which are made the proper size to fit inside the steam box. The hose is turned on the oysters, and they are given a thorough washing. The car is then run into the steam box, and subjected to a temperature of about 236° F. (113° C.) for five minutes. This kills and partly cooks the oyster, and causes the shell to loosen so that the removal, shucking, as it is called, is an easy matter. The shucked oysters are washed and filled into the cans by weight. A weak brine is added

to complete the fill. The so-called oyster juice is nothing more than this brine with such extractives as come from the oysters in processing.

Salmon

The salmon is pre-eminently the sea-food in cans in this country, the value of the pack being equal to nearly all other sea-foods combined. This great packing industry extends north from the Columbia river, along the Alaska coast. There are four varieties of fish used extensively, known by different names in the different localities; they are the Chinook, or King Alaska; the blue back, or sock-eye; silver sides; and the humpback. Trade preference is for the salmon with the very reddish color, but for real flavor the paler color may be better, the meat not being so dry, and containing more oil. Under the present method of branding, one cannot be certain of the variety or grade from the label.

Salmon are caught as they are leaving the sea to go up the rivers to spawn. Various methods are used for catching, from the small gill-net, requiring one attendant, to the enormous traps capable of corralling thousands of fish at a time. A trap represents the most efficient method of catching and is built by driving piles about 15 feet apart in the river or channel through which the fish will pass. The piles start at the shore and extend out and up stream at an angle for about one-fourth of a mile. Heavy wire netting is strung on these posts and at the upper end a square is constructed of the same piling and wire, which is known as the pot. An opening is left in the pot next to the line of the net which directs the fish into this enclosure. Connected with this pot is a smaller one about 12 feet square known as the spiller. The fish in the pot are directed into the smaller square through a wire tunnel, a wire net or brail lies on the floor and, when the fish are trapped, the brail can be raised by power, and thus dump tons of fish at a single haul into the boat alongside. The brail is dropped and the operation repeated until the trap



The iron chink. The most wonderful machine in the cannery.

is emptied. When the rivers are shallow, large nets or seines are used and dragged ashore by teams.

The dressing of the fish, or butchering as it is called, is nearly all done by machinery. The heads and tails are cut off by saws and then the fish is fed into the iron chink which removes the fins, splits the body open, removes the viscera and scrubs the fish, and drops it into a tank of clean water. The fish is then inspected and the cleaning completed by hand if any spot has escaped. They are next fed into the machine which cuts them into the correct lengths to fill the cans. The tall cans are filled by machinery, while most of the short cans are filled by hand. Each can is weighed and for this purpose automatic weighing machines are used, and correction made to proper weight before the cans go to the sealing machine. A very long exhaust and a heavy process are used.

Many persons have a notion that fish-canning would be a sloppy and rather unclean operation. This is far from the actual condition. The machinery is automatic and so nearly perfect that it is attended with less muss than in most fruit and vegetable canneries. Salmon canning has made greater advancement than any other line of fish or meat packing.

Sardines

The canning of sardines is confined to the Maine Coast upon the Atlantic and to Monterey Bay in California upon the Pacific. The Government defines a sardine to be a small herring and they are generally between 5 and 10 inches in length. The fish which reach the greater length and above are now packed in round cans and sold as herring. The sardine caught on the Pacific Coast is larger and differs from that on the Atlantic. While the sardine industry is a large one, it is conducted in much the same manner as when it originated.

The sardine is caught in weirs along the coast. A weir is a heart-shaped pen made of stakes, brush, wire, etc., and is built with one side near the shore. It has an opening

facing the direction from which the tides come in and the opening is directed inward. The fish when once impounded, tend to swim around in a circle, and the opening being directed in, tends to cause them to pass without finding a way out. The fish are caught with the rising tide. Attached to the weir is a small enclosure or pound into which the fish are directed and held for twenty-four hours to free them of feed. They are taken out of the pound with a net. At the factory the fish are washed and placed in strong brine for about two hours, or until they are "struck," *i. e.*, made firm by the salt. They are then well washed and delivered to the flaking machine. These machines place the fish in single layers on wire frames known as flakes, and are for the purpose of drying the fish. The flakes are racked on special trucks and run into a steam chamber for about twelve minutes and then into a dryer for about twenty minutes. The time depends upon the fatness of the fish and the temperature.

The fish are then ready for the packing table. Here the head is taken off and as much of the body as may be necessary in order to make the fish fit the can. The large fish are eviscerated but not the small ones. The cans used are either the quarter-pound or three-quarter pound flat. The can receives the proper amount of cotton-seed oil, olive oil, mustard, tomato, or sauce, before the fish are packed. The fish are carefully layered with the silvery portion of their bellies up so as to make a good appearance.

On the Pacific Coast, the sardine is caught at night, by means of nets. The factory practice differs from that in the East in that the fish are decapitated and eviscerated before going into pickle. The flaking is done by hand, the fish being arranged in wire baskets, after which they are placed for a time in the driers. The fish are fried in hot oil the day before they are packed. The oval can only is used.

Shad Roe

The shad roe is packed as a by-product in the handling of shad. The quantity available is not large, but owing to

its excellent quality, it brings a good price. The roe is carefully washed, the proper quantity placed in cans and either brine, oil, or sauce added, sealed, and given a process of 240° F. (115.5° C.) for an hour.

Shrimp

The shrimp is a crustacean the same as the cray fish, crab, and lobster. They are caught in the Gulf of Mexico from Texas to Appalachicola, Florida, and on the Atlantic Coast as far north as Savannah. Shrimp are caught in other places, but are not of proper size or in sufficient quantity to can. Formerly the catch was very irregular as they had to be taken in nets in shallow water less than 6 feet deep. The invention of new fishing tackle makes it possible to fish in water 30 feet deep, and has greatly increased the available supply.

The fishing is done with nets, and, as soon as they are brought on board the boats, they are iced, as they not only keep better, but the period of holding in the ice at the plant is shortened. The icing greatly facilitates the work of heading and picking at the factory. The preparation at the factory consists of removing the head and thorax, squeezing the heavy muscular part out of the shell, washing, and then dropping into boiling brine for about four minutes. The blanched shrimp are turned out upon wire tables to cool, and are then run through a wire squirrel-cage to rid them of particles of shell or small broken pieces. In the smaller factories this work is done by hand. The cans are filled by weight and may be packed wet or dry. A wet-pack shrimp has weak brine added, while the dry-pack is without such an addition. The wet shrimp has more of the original or natural flavor than the dry.

Tuna

American canned tuna is of comparatively recent origin. Although the tuna belongs to the mackerel family, it was not regarded as a specially good food fish. A method of treatment was developed, however, which has made one of the best and most popular fish products. The tuna is

a rather large, very firm fish. It is caught with hook and line. It is bled and dressed as soon as it is drawn into the boat. At the factory the fish are washed and hung up by the tail for twelve to twenty-four hours to be certain of the drainage of all blood. They are then placed in pans or on iron racks and run into ovens and baked by steam heat for about three hours which loosens the skin from the flesh, and the flesh from the bones, causes the oil to separate, and produces a marked whitening of the flesh. When cold, the skin is peeled off, the white meat is separated from the dark, and cut into suitable lengths to fit the cans. The meat is carefully graded, the white being used for the highest grade, while the dark meat and the small bits and scraps from the white meat are run through a grinder, spices may or may not be added; the latter product is sold as potted or deviled tuna. When the cans are filled, instead of using the oil from the fish, either olive oil or a mixture of olive and cotton-seed oil is used. Tuna has a distinctive flavor that makes it particularly desirable for salads.

Fish Flakes

Fish flakes are a mixture of fish meats, though principally of cod and haddock. Instead of drying, as has been customary, the fish are lightly corned, then put on trays, run into a retort, and given a steaming sufficient to loosen the skin, and to permit the bones being lifted almost free from the flesh. By this treatment the flesh breaks apart in layers making a product known to the trade as flakes. The skin and bones are easily picked out by hand, and the meat filled into paper-lined cans. No sauce is added. This gives a very tender and better flavored product than that secured by the method of hard salting and drying.

MEATS

Meats

The canning of meats for interstate commerce is under government supervision. No meat may be used which

has not been inspected, the plants must comply with prescribed sanitary regulations, and the methods be approved. This is the only line of canning under inspection. It practically limits the canning to the large slaughter houses, or to companies purchasing only inspected products and having inspectors in their plants.

The meats used for canning are principally the forequarters of beeves, and other parts that cut with waste upon the butcher's block. The meat is stripped from the bones, the larger layers of fat removed, and it is then placed in a jacketed kettle to heat for an hour or more just below the boiling point. This causes a marked shrinkage and loss of weight—30 to 40 per cent. If the meat be cut into pieces and put into cans without this preliminary cooking, it will shrink and float in an unattractive looking liquor. The cooked meat is cut into the proper sized pieces and packed into the cans. A quantity of meat jelly is added to prevent the meat adhering to the tin in spots, and also to give it a better appearance.

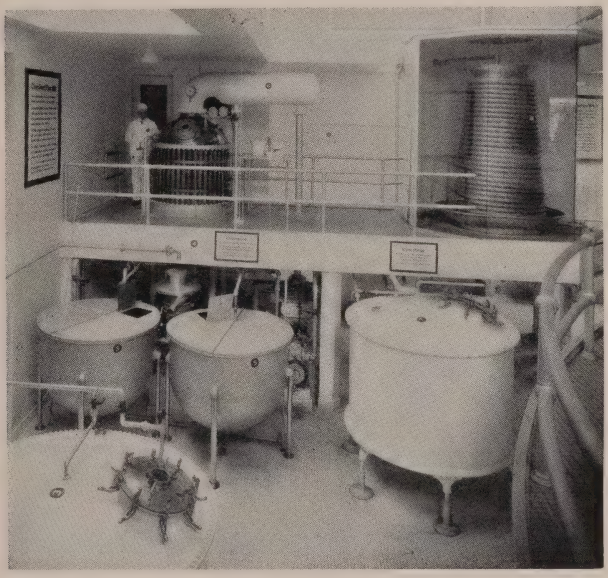
Some of the meats are partially cured before canning, as corned beef. Sausages and minced, deviled, and potted meats are cooked and run through meat cutters or grinders. These products are generally made from meat trimmings and pieces too small to use in the regular style. Some of these contain mixtures of meats, some cereal, and others spices. The packing of chicken, turkey, and game follows the general routine of meat packing. Owing to the difficulties in processing, and the possible danger from the use of a spoiled meat product, it is strongly advised not to attempt home-canning.

MILK

Milk

Canned milk may be obtained at almost any grocery store in the country, either as evaporated milk or as condensed milk. The difference is that in the former, the milk is concentrated and then sterilized, while in the latter it is concentrated and then sugar added to preserve it.

The packing of milk requires greater care throughout the various operations than is usually found in the dairies supplying the fresh milk trade. An evaporating plant cannot operate unless it be assured of a fairly constant supply of several thousand pounds per day. This supply must come from large producers; a dairyman with only

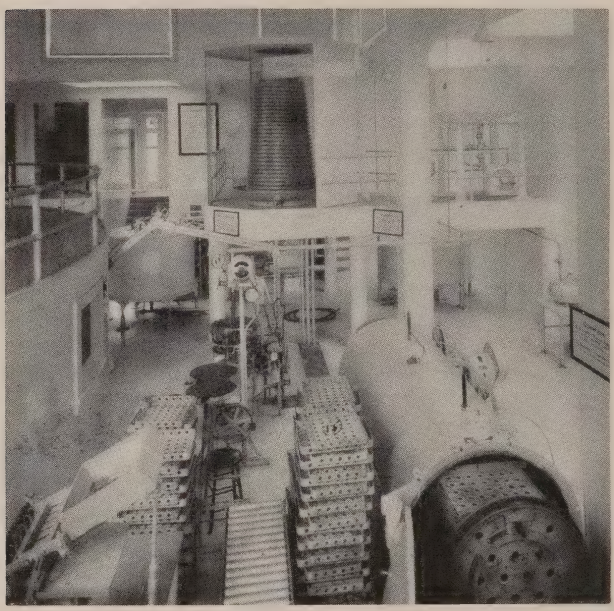


Milk plant, showing clarifier, vacuum pan, cooler, and holding tank.

two, three, or four cows is not a desirable patron. The character of the feed is kept under control, the health of the herds, the sanitary condition of the stables, the handling of the milk, and the time of delivery are all matters of factory supervision in order to secure a high and uniform quality in the raw product. The effect of concentrating and high temperature is such that milk if not first class

will curdle, separate, and otherwise become unmerchantable. Milk which would pass in the fresh market might not be suitable for condensing.

As soon as the milk is drawn, it is strained and either run over a cooler or filled into cans that are set in a chilling



Milk plant, equipment for filling and sterilizing cans.

tank to reduce the temperature as quickly as possible. At the factory the milk is first run through a clarifier to remove all foreign matter, and is drawn into large tanks or forewarmers, in which it is heated to near the boiling point. The milk is then tested to determine the ratio of evaporation necessary to bring it to the desired standard.

The concentration is conducted in a vacuum pan, in order that the evaporation may go on at a low temperature. The boiling proceeds between 130° and 150° F. (54° and 66° C.). When it is believed that the batch is nearly completed, a "strike" is made and the milk tested, and this is repeated at short intervals until the desired consistency has been reached. The completed batch is drawn over coolers into storage tanks, and very carefully tested for fats and solids to be certain that it will comply with the minimum requirements of the food regulations, that is, it shall not contain less than 25.5 per cent total solids and not less than 7.8 per cent of milk fat.

The cans are filled, and are agitated while being processed. This is for the purpose of preventing overheating the very thin layer of the milk next to the tin.

If condensed milk is being prepared, sugar is added to the hot milk before it goes into the pan, or heavy syrup is made and drawn into the pan with the milk. The proportion is about 16 per cent by weight to the raw milk so that when evaporated it is equivalent to about 40 per cent. The condensed milk is tested the same as the evaporated on the finished product, is run into the cans, sealed, but given no subsequent sterilization.

The great advantage of the evaporated milk is that it is of a certain quality, is sterile, and remains free from contamination until the can is opened.

SPECIALTIES

Beans

The canning of pork and beans, beans with tomato sauce, and baked beans is a very large business in itself. The white or navy bean grown in Michigan, Wisconsin, and New York is preferred for canning. The beans are machine-cleaned and hand-picked for defects. They are soaked from twelve to twenty hours in cold water, the water being changed about every four hours. The beans are then either placed in large jacketed kettles and heated

to near the boiling point for from thirty minutes to an hour and a half, or are blanched from ten to twenty minutes. A bit of pork is placed in the can, the beans are filled to the proper height, and sauce added so that when processed, they will have the proper consistency. There is a very marked difference in the mode of preparation and the sauce used. There are very few baked beans. This term implies the subjection of the beans to heat before being put into cans, which entails a loss of weight in the process. Heating in the closed can gives a different effect, and it is a matter of personal opinion which is better.

Hominy

Hominy is used in every logging and mining camp in the country. It is a food much relished by those engaged in hard physical work, and the canned article is the one preferred, because of the ease and the short time required for preparation. It is also becoming a fairly popular breakfast food, when served with milk. In the high class hotels it frequently appears under titles, such as "Cream of Whole Corn."

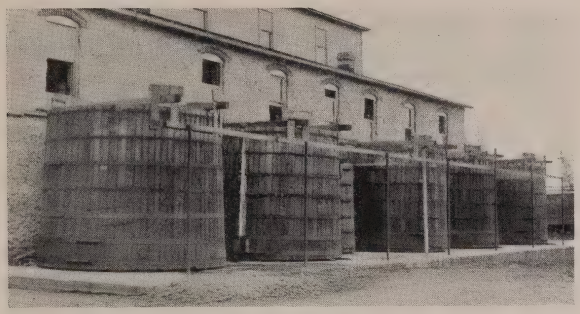
Hominy is made from selected white shelled corn. It is screened to take out the small defects and split grains. It is then washed and subjected to hot lye for from twenty to forty-five minutes. During this time it is agitated. When the hull loosens, the corn is run through a machine which removes the hull from the kernel. The next step is thorough washing and soaking, which requires several hours, and at most factories the soaking process is continued over night. The can is filled with the proper amount, and weak brine added.

Sauer Kraut

Sauer kraut is made by cutting cabbage into fine shreds, packing it tightly in large tanks or casks, and permitting it to ferment through the activity of its own organisms. This product has a rather ancient history in Central Europe and Russia, but the greatest modern improvement

is in distributing it in cans. The packing of sauer kraut is growing very rapidly in this country.

The cabbage is trimmed of its outer coarse and green leaves, the core is cut out or shredded by a special cutter, and the heads are then thrown into the cutter. This consists of a series of curved knives mounted in a wheel, the knives being set to cut as coarse or as fine as desired. the finely cut cabbage is packed tightly into large vats and as each layer is packed, about 2 per cent by weight of salt



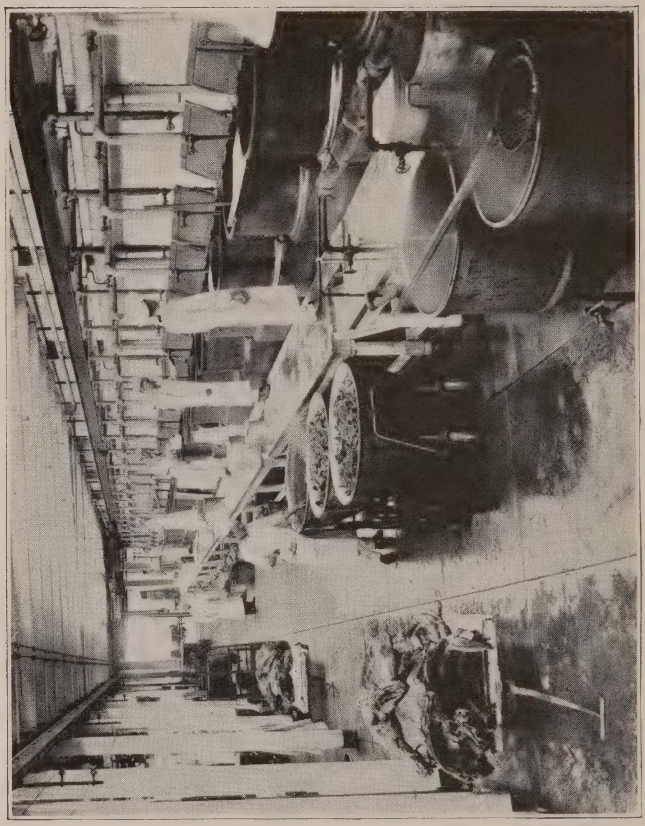
A small group of kraut tanks.

is added. The top is covered tightly and weighted. If the temperature is above 60° F. (16° C.), fermentation will begin at once, a brine will rise above the cabbage and will remain for two weeks or more, depending upon the temperature, and then gradually return to the mass. This marks the completion of the fermentation which indicates that the kraut is fit for consumption.

The kraut is filled into cans by weight, a weak brine added and it is given a short process at boiling temperature.

Soup

This is described on page 113.



A view in a modern soup kitchen

HOW TO USE CANNED FOODS

Introductory

The object of the work that follows is to indicate how some canned and other prepared foods may be used in ways to lighten work in the preparation of various dishes, and especially how they may be used in more appetizing ways than the ordinary reheating. In the recipes that follow, either fresh or canned material may be used, but it is believed that the latter will usually prove the more economical.

In the ordinary treatise on the use of canned foods their advantage for emergencies is given, sometimes accompanied by a list of foods which should be in the emergency closet, or a menu for unexpected guests is given in which canned foods play a leading part, and enable the ingenious housekeeper to display her skill creditably. The tendency of the basic reasoning is somewhat illogical and misleading.

The housekeeper likes something better than the ordinary for company, and if that has been obtained, and with it a shortening of the time of preparation and inevitably with the shortening a lessening of the labor, then why not use these foods commonly instead of in emergencies?

The relative cost of canned and fresh stock is not well understood. Any estimate made to determine which is the cheaper should include not only the first cost of raw material, but also the added labor in securing the material, in its preparation, and in the disposal of the waste. In the rural districts and in the smaller cities and towns, the cost of fresh material is low, but in the larger cities it may not become cheap at any season. When peas or tomatoes cost 10 cents or more for a quarter of a peck, a can is almost certain to be the cheaper, for it requires more than this quantity of either to make one can. It requires on an average more than four ears of sweet corn to make one can. Peas, string beans, tomatoes, and beets, shipped from the south to northern markets, or asparagus shipped from

California to the East, are always much higher than the corresponding products in cans. There is a real need for both the fresh and the canned, and the latter cannot be substituted in whole for the former, but most persons do not know the basis on which to make a discrimination between the two in the matter of cost. What applies to the few products cited, applies with equal force to many others. The canner buys by the hundreds of tons and thus he is enabled to deliver goods in quantity and of a quality equal to, or better, than can be delivered raw in the regular fresh market.

In the preparation of many of the nicer dishes in which skill is required, the part in which individuality is used is after the meat, vegetable, or fruit is cooked, and in many cases cooled. For these dishes it would seem unprofitable for the housekeeper to do the rougher work of sorting, washing, peeling, and preliminary cooking, and to look after the disposal of the waste, if this work is avoidable. It is in this respect that the better hotels and restaurants have the advantage, as they waste no time in preliminary work which can be more advantageously done by outsiders, and they look after the cost much more closely than the housekeeper; if it were cheaper, or if the finished foods were better, they would use the raw products. The housekeeper has spent most of her energy in doing the rougher work, and has little left for the part requiring skill, so that necessarily "plain" foods are served.

A feature which enters into the higher cost of using canned foods is that the ordinary housekeeper is possessed of a form of pride which permits her to use only the highest grade article, though when she buys raw material in the market she must necessarily use it ungraded, as a very large amount would be required to grade as done in the factory. For an example, twelve peaches are often times better suited to her purpose than six larger halves, and cost less; and there is more nourishment and flavor in a can of fully developed peas at one-half to two-thirds of the cost of the tiny immature ones.

An important step in the reduction of the cost of canned foods is the purchase of case lots. At the present time the retail price is based upon the single can, and there is little concession made for sales in dozens or cases, either straight or mixed. Any smoker can go to the corner tobacconist and buy a box of "indulgence" at almost wholesale rates. There is far more reason why this principle should apply to canned foods.

Kinds of Food

The variety of foods canned is constantly increasing, as it is found from experiment that certain foods can be utilized the entire year, instead of for only a limited season, or that certain foods are improved by the treatment. In foreign countries many products are canned of which the average person is wholly unaware, the goods being used by the natives only, or by those who have traveled, or where the price is high, available only to persons of means. In our own country many foods are canned which are also unknown to the average consumer, but which, if known, would not only lighten the labor of preparation, but add variety to the menu, as well as in many cases lessening the cost. There are also many foods and condiments prepared in other ways than by canning, which, if known, would be of considerable advantage to the housekeeper in aiding her to give variety to the menu. Among these are prepared sauces and forms of ketchup which may be used to impart flavor and a degree of piquancy to the ordinary sauces. Preparations of the various spices, spiced salts, and herbs are also valuable additions to the kitchen supplies, and as they are in dry form, may be kept without fear of spoiling.

The following is a list of the more common canned foods. Those marked with a star, while packed in tin and glass and popularly called "canned," are not sterilized by heat.

Soups

Asparagus.
Beef—broth, soup, juice, extracts (liquid, solid).
Bouillon—beef.
Chicken—broth, chowder, consomme, gumbo, okra.
Clam—bisque, bouillon, broth, chowder.
Consomme—ordinary, condensed.
Julienne.
Meat—extracts (liquid, solid, juice).
Mulligatawny.
Mutton—broth.
Okra.
Onion.
Oxtail—clear, thick.
Oyster—bisque.
Pea.
Pepper pot.
Petite Marmite.
Printaniere.
Purée—asparagus, beans, lima beans, celery, peas, tomato.
Tomato—nectar, purée, okra.
Turtle—clear, green, mock.
Vegetable—clear, condensed.
Vermicelli—tomato.

Fish and Shellfish

Anchovies—whole, paste.
Carp—smoked.*
Caviar.*
Cod—sliced, shredded, balls, cakes.
Eels—in jelly, spiced.
Haddock (Finnan haddie).
Halibut.
Herrings—fresh, bloated, kippered, in tomato sauce, smoked.*
Mackerel—plain, broiled, salted.
Menhaden.

Pickerel—smoked.*

Pike—smoked.*

Roe—caviar (sturgeon or other fish),* cod, herring, salmon.

Salmon—plain, smoked.*

Sardels.

Sardines—oil, mustard, tomato, soused.

Shad.

Sturgeon—pickled, smoked.*

Tuna—white, dark, mixed, spiced, deviled, potted, chowder.

Trout—smoked.*

Clams—little neck, razor backs.

Crabs—plain, deviled.

Lobsters—plain, pickled.

Oysters.

Shrimps—dry, wet, headless, paste.

Terrapin.

Turtle.

Meats

Bacon—sliced.*

Beef—a la mode, boiled, braised, brisket, Burgundy style, chipped,* corned,dried,* extract, goulash (Hungarian style), knuckles, minced, roast, sliced, smoked,* stew, suet.

Beef—with onions, with vegetables, hash (corned and roast beef).

Brains.

Chicken—boneless, potted, deviled, tamales, sauté a la Marengo, curried, provencale, liver.

Duck—roast, wild.

Goose—roast, paté de foie gras.

Grouse.

Ham—deviled, loaf, potted.

Irish stew.

Kidneys—stewed.

Lamb—roast, tongue.

Liver—with bacon, with onions.

Loaf—beef, chicken, ham, veal.

Mutton—roast.

Ox-tails, tongue.

Partridge.

Pork—pig's feet, lard.

Quail.

Sausage—Frankfurt, German lunch, lunch, Oxford, pork, sausage meat, with sauer kraut, Vienna.

Tongues—calf's, lamb, lamb pickled, lunch, ox, picnic.

Tripe—boiled.

Turkey—roast.

Specialties—Chile con carne with and without beans, collops, hash of various kinds, mince meat, deviled and potted mixtures.

Stews—army rations.

Veal—loaf, roast.

Game patés truffled—chicken, chicken liver, wild duck, grouse, partridge, quail.

Entrees—braised beef a la jardiniere.

Vegetables

Artichokes—heads, hearts.

Asparagus—stalks, pieces (soup stock).

Beans—baked, with tomatoes, with pork, kidney, lima, string, wax.

Beets—various sizes, pieces.

Bread—Boston brown.

Brussels sprouts.

Cabbage.

Carrots.

Cardoon.

Cauliflower.

Corn—cream, Maryland style, kornlet, corn-meal mush, on the cob.

Cucumbers.

Dandelions.

Endive.

Hominy—whole, pearl (cut).

Kale.
Lentils.
Mixed vegetables for soup.
Mushrooms—heads, pieces.
Oatmeal.
Okra—slices, with tomatoes.
Olives—green, ripe, stuffed* (with pimienta, celery, capers, nut meats), rings, in oil.
Onions.
Parsnips.
Peanut—butter.*
Peas.
Peppers—pimienta (sweet), green, red.
Pickles—gherkins.
Potatoes—sweet.
Pumpkin—plain, spiced.
Rice.
Salsify.
Spinach.
Squash.
Succotash.
Tomatoes—whole, pieces, pulp, chili sauce, ketchup, nectar.
Truffles.
Turnips.
Whole wheat.

Fruits

Apples—whole, halves, pieces, sauce, butter.
Apricots—whole, halves, slices, pieces.
Blackberries—dry, syrup.
Blueberries.
Cherries—white, red, black, maraschino.
Crabapples.
Cranberries—sauce.
Currants.
Figs—whole, pieces.
Gooseberries.

Grapes.
Grapefruit.
Loganberries—dry, syrup.
Nectarines.
Oranges.
Peaches—whole, halves, slices, pieces.
Pears—whole, halves, pieces.
Pineapples—slices, pieces, grated.
Plums—green, red, purple.
Prunes—dry, syrup.
Quince—pieces.
Raspberries—black, red, white.
Rhubarb.
Strawberries.
Tamarinds.

Specialties

Cake—various kinds.*
Cider.
Cheese.*
Chili con carne.
Chow chow.
Conserve.
Eggs.*
Enchilladas.
Fruit-butters—(plain, spiced), crushed, pulp.
Honey.*
Jams.
Jellies.
Marmalades.
Milk—condensed, evaporated, dry.
Mince—with and without meat, dry, moist.
Molasses.
Olive mixtures.
Pie crust.*
Puddings—fig, plum, etc.
Salad dressings.
Sauces—for meats, vegetables, puddings (brandy, custard).

Spiced and pickled fruits.
Tamales.

Ready-Made Entrees

Braised beef a la jardiniere.
Beef a la mode.
Beef, Burgundy style.
Goulash, Hungarian style.
Sauer kraut and sausage.
Veal and green peas.
Calf's tongue, tomato sauce.
Calf's tongue, sauce piquanté.
Chicken curry a la Marengo.
Chicken a la provencale.

SAUCES

In making the roux for sauces, starch gives a smoother, more transparent thickening than flour. Since the starch is the only part of the flour that is necessary and that thickens, there is no reason for using flour except as a matter of convenience. When starch is used, only half the amount is required that would be necessary if flour were used. Any of the starches, as corn, arrow-root, potato, etc., may be used. A few of the sauces that are oftenest used and which may be modified to suit particular dishes are given.

The numbers in parentheses in the list of ingredients indicate the size of can required.

Cream Sauce

One ounce butter, one ounce flour or one-half ounce corn starch, one-half pint cream, salt, pepper, mace.

Heat the butter, add the thickening gradually, working it smooth, being careful not to let it burn, then add the cream gradually. It may be thinned with milk or white stock, and varied by using nutmeg instead of mace, and may also have the juice of a lemon added.

Bearnaise Sauce

Four ounces butter, four egg yolks, four tablespoons tarragon vinegar, one small onion, one sprig of thyme, salt, six peppercorns.

Cook in a saucepan the vinegar, the minced onion, the thyme, salt, and peppercorns. When reduced to two-thirds, take off the fire and cool, then beat in the yolks. Put the saucepan on a low flame, add the butter gradually, stirring constantly until the yolks have cooked and thickened the sauce. Strain while warm. The sauce should not be served hot, as it is really more of a mayonnaise.

The sauce is usually made with shallots, but onion or an equivalent amount of leaves of chives may be substituted.

Bechamel Sauce

One ounce butter, one-half ounce arrowroot or other starch, one onion, few whole peppers, thyme, one pint milk, one ounce veal, salt, nutmeg.

Sauté the minced onion and veal, then add with the other seasoning to the hot milk, cover, and let infuse on a very low flame. Make a roux of the butter and starch, and pour the hot milk on, stirring until smooth, cook the sauce for fifteen minutes. Strain. It may be thinned with stock or cream. A small bit of ham is sometimes added with the veal.

Bearnaise Tomato Sauce

This is made by adding to the finished Bearnaise sauce a quarter of a pint of tomato purée.

Española (Spanish) Sauce

Two ounces butter, two tablespoons flour or one of starch, one can consomme (highly seasoned), two tablespoons tomato purée or ketchup.

Make a brown roux by stirring the butter and starch over a low fire, until of a brown color, then add the hot stock slowly so as to keep the sauce smooth, and the tomato. Cook slowly for about an hour, removing the scum from time to time. If necessary, add more stock.

Hollandaise Sauce

Eight ounces butter, five egg yolks, juice of one lemon, salt, cayenne.

Put the lemon juice and the yolks in a double boiler, and add the butter, a bit at a time, stirring constantly until the sauce is creamy. The water must be kept from boiling or the eggs will scramble. A safer way is to whisk the eggs until creamy, then remove the vessel from the fire, and add the butter gradually. The sauce may be thinned with cream or with water. The consistency may be varied by the number of eggs used or by the extent of the cooking.

Fish Sauce

An excellent sauce is made by adding whipped cream to the Hollandaise, adding the cream slowly, and in the proportion of one part cream to two parts of the Hollandaise.

Butter Sauce

Put the desired amount of butter in a saucepan and brown slightly, at the same time removing the froth. When ready to remove from the fire, season with salt and lemon juice, and strain over the fish or meat to be served.

Tomato Sauce

One can tomato purée (No. 1), one ounce butter, one carrot, one onion, six peppercorns, three ounces ham.

Brown the minced onion, carrot, and ham in the butter, add the peppercorns and the tomato and simmer for half an hour, then add starch to thicken, cooking again, so as not to have a raw flavor.

Mushroom Sauce

Make a white or cream sauce, using the mushroom liquor instead of cream or milk. Just before serving add the mushrooms and cream, and after that a teaspoon of lemon juice.

East India Sauce

One can chicken broth (No. 1), one small onion, one apple, two ounces butter, one teaspoon Worcestershire sauce, one table spoon Bengal chutney, salt, pepper.

Mince the onion, brown in the butter, then add the apple minced and the broth or stock, and cook until the apple is soft. Strain through a wire sieve, then add the Worcestershire sauce and the chutney.

Sauce for Cold Meat

To a pint of thick mayonnaise add gradually a quarter pint of whipped sour cream that has had added to it the juice of a lemon and a teaspoon of Worcestershire sauce.

SALAD DRESSINGS

Salad dressings are as easily made as any other simple sauce if the tradition in regard to having all the ingredients chilled is set aside. Oil need not be held in the refrigerator, but is better at the room temperature, and salt added at the start helps in the blending of the egg yolks and oil. An average-sized egg yolk will blend with five tablespoons of oil, and an extra tablespoon may be added if the mayonnaise is to be used at once. The separation of the oil and yolk is due to the oil being too cold, or to an excess of oil.

When it is desired to have the mayonnaise hold its form, gelatin may be added in the proportion of a quarter teaspoon to the cup of mayonnaise. The gelatin is soaked in a tablespoon of water, then dissolved with the smallest quantity of boiling water, and when cool, and before it sets, added to the mayonnaise. This is done sometimes by professional caterers in preparing large amounts, as the dressing retains its body.

French Dressing

One-half teaspoon salt, one-quarter teaspoon paprika, six tablespoons oil, two tablespoons vinegar.

Mix the salt, paprika, and a small quantity of oil, then the rest of the oil, and lastly the vinegar. The dressing may be varied by using celery salt, a few drops of onion juice, or rubbing the bowl with a cut clove of garlic.

Cream Mayonnaise Dressing

The same as mayonnaise, but add one-quarter pint of stiffly beaten cream when ready to serve.

Cream Dressing

Two eggs, one teaspoon sugar, one-quarter teaspoon salt, one-quarter teaspoon mustard, three tablespoons vinegar, one tablespoon cream.

Mix sugar, salt, and mustard; add to the eggs well beaten. Place in a double boiler and add the vinegar and cream. Cook until it thickens, beating constantly while cooking.

Boiled Dressing

Two eggs, one teaspoon sugar, one-half teaspoon mustard, one-half teaspoon salt, one-eighth teaspoon paprika, one-half pint vinegar.

To the well beaten eggs add the sugar, mustard, salt, and paprika mixed thoroughly, then the vinegar. Cook in a double boiler until it thickens. Beat with an egg-beater while cooking.

Boiled Dressing

Two egg yolks, four tablespoons olive oil, two tablespoons vinegar, one tablespoon lemon juice, one teaspoon sugar, one-half teaspoon salt, one-half pint double cream.

Beat the yolks, add half of the oil gradually, then the vinegar, lemon juice, and the seasoning. Cook in double boiler until it thickens, cool, then add the remaining oil, and when ready to serve, the stiffly beaten cream.

Mayonnaise Dressing

One-half teaspoon mustard, one-half teaspoon salt, trace of cayenne, two egg yolks, one-third pint olive oil, three-fourths tablespoon lemon juice, three-fourths tablespoon vinegar.

Mix the mustard, salt, and cayenne so as to have no lumps, add to the egg yolks, stirring until smooth, then add the oil drop by drop at first, until very thick, then alternate the remainder of the oil with the lemon juice and vinegar. If a light dressing be desired, use all lemon juice. The vinegar may be added to the yolks and seasoning, beaten well, and the oil then added, as at first, drop by drop.

Tartar Sauce

To a cupful of mayonnaise add a teaspoon each of minced capers, olives, and whole small cooked peas; chopped pickles may be substituted for the olives, and parsley may be very finely minced and used.

Swiss Mayonnaise

To one-half pint of mayonnaise add two medium sized potatoes which have been cooked, seasoned with onions, salt, pepper, and mashed light. Just before serving add the stiffly beaten white of the egg.

Remoulade Dressing

Three hard boiled egg yolks, one-half teaspoon salt, one-eighth teaspoon cayenne, one raw yolk, one-quarter pint olive oil, one tablespoon vinegar.

Mash the cooked yolks until perfectly smooth, then work in the raw yolk. Add the salt and cayenne, and the olive oil drop by drop at first, stirring rapidly, then the vinegar, adding this gradually and mixing well.

This may also be made by taking one pint of mayonnaise and adding to it one tablespoon of each of the following: mustard, minced gherkins, capers, and a teaspoon each of parsley, tarragon, and chives.

Roquefort Mayonnaise

To one-half pint of mayonnaise add two tablespoons of grated Roquefort cheese, mixing until the dressing is smooth. This should be used only on lettuce, endive, or other green salad.

Vinaigrette Sauce

To French dressing add minced parsley, capers, olives, pickles, and grated onions.

GARNISHES

Garnishing a salad adds materially to its attractiveness, and in many cases to its nutritive value. Below are given some garnishes which are easily prepared:

Celery

Tender tips, stalks slit so as to curl, tender rounded stalks filled with cheese, or cheese and other mixtures, the outer coarse stalks removed at the root, the root trimmed so as to taper then the remaining stalks and root cut into quarters, each quarter will thus have a portion of the tender inner stalks.

Beets

The beets are removed from the can and drained, then soaked in spiced vinegar for a few hours, removed from the vinegar and sliced, cut into dice, balls, narrow uniform strips, or fancy shapes.

Chives

Leaves cut into uniform lengths, or minced.

Hard Boiled Eggs

Halved, sliced rings of white, yolk put through ricer, or yolk removed and mixed with relish, then returned to white.

Lemons

Cut in slices, quarters, points, or serrated.

Olives

Whole green, ripe, or stuffed, rings, ribbons, or small ones cut in points.

Onions

Cut in slices, rings, strips, or small ones cut in points.

Radishes

Cut into flower shapes; select those of uniform shape, either small and round, or long and tapering; root end cut off and about an inch of green stems left on for color contrast.

Shrimp

Large, wet pack shrimp; or the shrimp may be soaked in a liquor made by cooking an onion, bay leaf, thyme, three cloves, six allspice, and six peppercorns, one tablespoon vinegar, and about a pint of water. The condiments are first stewed in the water for about an hour, then the liquor is filtered, and the shrimp soaked in it for a few hours. The shrimp are dried and used to ornament other dishes, or they may be served on cracked ice.

Parsley

Chopped fine or coarse, sprays, sprays fried.

Pimientas

Canned or raw pimienta cut into strips, circles, or fancy shapes, green or red, or a mixture of both colors.

APPETIZERS

Lobster Cocktail

One can lobster (8 ounces), tomato ketchup, sherry, lemon juice.

Cut the lobster into small pieces, mix with the ketchup, sherry, lemon juice, and salt to flavor. Serve in cocktail glasses.

Crab Cocktail

Substitute crab for lobster, prepare like lobster cocktail.

Oriental Canapés

One can lobster or crab, one ounce butter, curry powder, lemon juice.

Pass the lobster or crab meat through a food chopper, and mix with the butter. Season with salt, pepper, mustard, cayenne, nutmeg, and curry powder, and moisten with lemon juice. Cut small rounds of toasted bread, scoop out some of the center, fill with the mixture and cover with curry sauce. Sprinkle with fine bread crumbs and let bake in the oven for a few minutes. Serve hot.

Curry Sauce

Two ounces butter, two tablespoons flour, one tablespoon curry (scant), one teaspoon onion juice, one-half pint of milk, one hard boiled egg.

Blend the butter, flour, curry, and onion juice. Let cook a few minutes, but do not brown. Stir the milk in gradually, season with salt and pepper, and before serving add the eggs chopped fine.

India Canapés

Bread, one can ham (4 ounces), one ounce chutney, two ounces Parmesan cheese, parsley.

Cut the bread into thin circles and toast in butter. Spread with the ham and chutney, and sprinkle with the grated cheese. Set in the oven a few minutes. Serve hot garnished with parsley.

Spanish Canapés

Bread, one can tuna (8 ounces), three sweet pickles, two tablespoons chutney, two tablespoons Hollandaise sauce, three tablespoons Parmesan cheese.

Cut the bread into thin circles, toast in butter. Mix the fish (drained from oil) with the minced pickles, and the chutney, and moisten with the sauce. Spread on the toast, sprinkle with the grated cheese and bake for 5 minutes. Serve hot.

Asparagus Canapés

One can asparagus (No. 2), bread, mayonnaise.

Drain the stalks in a towel, serve on the bread cut into diamonds and toasted, and the mayonnaise poured over.

Ham Canapés

Bread cut in circles and fried, one small can deviled ham (4 ounces), cream, cheese.

Prepare the bread, and spread with a paste made of the ham with cream to moisten. Sprinkle with grated cheese.

Caviare Canapés

One can caviare, bread, watercress, butter.

Cut the bread into disks, sauté in butter. Spread with a mixture of equal amounts of butter and minced water cress, with a thick layer of caviare on top.

Shrimp Canapés

One can shrimp (No. 1), bread cut in squares and fried, parsley, butter.

Grind part of the shrimps until a smooth mass and mix with butter until smooth. Spread on the bread. Place whole shrimp on top, and sprinkle with chopped parsley.

Small Rolls with Ham

Small rolls, one can potted ham, two hard boiled eggs, lettuce, three radishes, one ounce butter.

Mix the ham, butter, minced eggs, thinly sliced radishes, and finely cut white lettuce leaves. Cut the rolls, almost through, in two lengthwise, and remove most of the soft part. Spread the insides with the mixture and close.

Small Rolls with Mayonnaise

Six small rolls, mayonnaise, two tablespoons finely chopped celery, two tablespoons chopped olives, two tablespoons chopped smoked tongue.

Cut the rolls in two lengthwise, keeping together, remove soft part, and fill with a stiff mayonnaise to which has been added the celery, olives, and tongue. Close each roll.

Tongue Canapés

One can tongue (4 ounces), one teaspoon made mustard, one-half ounce of butter, one hard boiled egg yolk, two teaspoons lemon juice, paprika, nutmeg, bread.

Put the tongue through a meat chopper, mix with mustard, butter, egg yolk, lemon juice, and flavor with salt, paprika, and nutmeg. Fry rounds of bread, place the mixture on them, and garnish with water cress. This mixture may be used in sandwiches.

Oyster Canapés

One can oysters (No. 1), one teaspoon bread crumbs, one ounce butter, one-eighth pint cream, bread roll.

Chop the oysters fine, mix with them the bread crumbs and cream. Season with salt and pepper, and simmer for a few minutes. Cut the bread into circles, toast, and butter them. Pour the mixture over and serve hot.

Oysters on Toast

One can oysters (No. 2), one saltspoon salt, pepper, one egg yolk, three tablespoons cream, two teaspoons sherry.

Drain the oysters, then heat in a buttered pan, sprinkle them with the salt and pepper. Next add the beaten egg yolk in the cream. When heated well, but not boiled, add the sherry, and serve on toast.

Savory Butter for Canapes

One-quarter pound butter, two dozen olives.

Cream the butter, then add the olives which have been passed through a meat chopper, after being stoned, season with paprika, and rub together until smooth. Either green or ripe olives may be used.

Olive Cream for Sandwiches

One-quarter pint cream, two dozen olives, one-quarter teaspoon salt.

Beat the cream until stiff, and add the olives after stoning and running through the meat chopper, then add the salt, and rub to a paste. Spread between buttered slices of white bread.

These may be varied by using green olives with half the cream, and ripe olives with the other half. Use four slices of bread, two of which have been lightly buttered on both sides, the other two slices buttered on one side only. Put layers of the green and ripe olive mixtures between the slices so that there will be two layers of ripe to one layer of green or the reverse. Cut in strips and arrange on a doily.

Plain Canapés

Potted fish or meat, brown bread.

Cut the bread very thin, remove crust, toast, and butter lightly. Spread with the potted fish and cut into strips.

Mayonnaise Piquante Sandwiches

One-quarter pint mayonnaise, two dozen ripe olives.

After stoning, pass the olives through a meat chopper, mix with the mayonnaise, and spread between thin slices of bread lightly buttered.

Russian Canapés

One can smoked sardines, two ounces butter, four teaspoons cream, ripe olives.

Heat the butter until hot, mix with the sardines, which have been passed through a chopper. Then add the cream, mix well, and spread on toast cut in fancy shapes. Garnish with olives.

PASTES FOR APPETIZERS

Pimienta Butter

One green or red pimienta, two ounces butter, salt.

Cream the butter, add salt, and pimienta passed through a chopper.

Pimienta Cream

One-quarter pint heavy cream, one egg white, two tablespoons pimienta purée.

Beat the cream dry, also the egg, put together with the pimienta and salt.

Cream Cheese

One Philadelphia style cream cheese, two tablespoons cream one tablespoon sherry.

Cream the cheese, add the stiffly-beaten cream, and the sherry. This may be given a more pronounced flavor by adding a small Neufchatel cheese, creamed.

Shrimp Butter

One can shrimp (No. 1), plain or prepared in an aromatic liquor, an equal weight of butter.

The shrimp are run through a chopper to form a paste and creamed with the butter.

A variety of butters may be made from shell-fish, plain or smoked fish, seasoned meat, various forms of cheese, and condiments, as, pimienta, horse-radish, etc., then worked to a paste, and creamed with butter. Or the creamed butter may have curry, onion, garlic, or celery seasoning added. They may be lightened with stiffly beaten cream, and moistened with sherry in some cases. Butters may be colored green, red, etc., and by means of a piping-bag made into fanciful designs.

SOUPS

There is a variety of soups canned, these including some of the different types of the clear thin and the thick soups. Among the latter are the purées, having a vegetable base, the bisques, having a shell-fish base, the cream soups, and other special forms. In addition to the soups there are meat extracts which may be used in making soups. These are not so rich in flavor as the consommes as the latter have the additional flavor derived from the vegetables and seasoning used in their cooking and clarification. The meat extracts can be used to much greater advantage than as plain broths if vegetables be prepared and cooked with them. The vegetables may be of different kinds, and cooked directly in the broth or better still sautéd in butter or drippings and then added. If bacon or ham dripping be used, it is an advantage. In the same manner the consommes may be used in many ways by changing the garnishing, the thickening, or combining them with a purée.

The consommes may be used also as the basis for rich sauces, or for glazes for meat or poultry. For these purposes the consomme may be reduced, until a spoon dipped in it is coated as if varnished, and in this condition it can be kept for a considerable time. A canned tongue or other canned meat which is to be sliced, if removed from the can, then brushed with the glaze, and placed in the oven until the glaze is formed, is much sightlier when placed on the table with a proper garnish than without the glaze. It also makes it possible to make well flavored sauces in a short time without the preliminary work of making stock.

The clear soups may have many changes made in serving them by adding freshly cooked vegetables cut into disks, stars, or rods, or sago, arrowroot, rice, and the various forms of macaroni. The sago and arrowroot may be cooked in the soup, but the rice and macaroni should be

cooked separately, in order to retain the clearness. For the purées, creams, or special thick soups, cream or milk may be added, but it should be boiled first, as the flavor is better, and the risk of curdling reduced. A substitute for cream that may be used and that will impart a similar smooth effect, is milk cooked, removed from the fire, and when it has cooled somewhat, added gradually to a beaten egg yolk. This should be poured through a strainer into the soup. If one has made soup that is too weak, it may be corrected by adding to it meat extract until the desired strength is attained. Additional flavor may be imparted to an inferior soup by the addition of some of the prepared meat sauces. The sauces are concentrated and rich in flavor.

Some persons have an impression that inferior meats may be used in soups, but the absurdity of this is apparent, when it is considered how soups are made and the enormous amount of material required in their manufacture. In the first place the chef selects meat that is older than that for roasts, etc., because the flavors are better developed. The bones are separated and cooked for a longer time in order to obtain all the gelatinous matter possible; after these have cooked for a certain number of hours, the stock from these is used instead of water with the meat. The meat is not cooked as long as are the bones, for the flavor of the finished product would be impaired. The chef has to produce distinct flavors that must be repeated in each batch, and he knows well that indifferent original material will result in indifferent stock, and aside from the materials used, every stage of the process must be carefully done. On account of the superior skill required in this branch of canning, the number engaged in the work is comparatively small, and the work is done usually on a large scale.

In the following recipes, and also those in other sections, evaporated milk may be used instead of the fresh milk designated, and in most cases to better advantage. The evaporated milk is cleaner and prepared under more sanitary conditions than the average fresh milk delivered

in towns. For the recipes in which plain cream is required, the milk may be used without dilution, but in those requiring milk it should be diluted one-half.

Clam Chowder

One can clams (No. 1), one can soup stock (No. 1), one onion, four slices salt pork, one ounce butter, two tablespoons flour, one-half pint cream, two potatoes.

Fry the onion and the diced pork in the butter, add the flour, and when cooked, the juice from the clams, the soup stock, the cream, a bit of mace, if the flavor be liked, and the potatoes diced. The potatoes require about 10 minutes to cook. At the last, add the clams chopped, and when ready to serve, some hard crackers.

Cream of Kornlet

One can kornlet, one can bouillon (No. 2), two ounces butter, one-half pint cream, salt, pepper, cayenne, croutons.

Heat the kornlet in the bouillon (chicken broth may be used), add the butter, and cream to the hot kornlet, strain through sieve, season, and serve with the crontous.

Hungarian Goulash

One can soup stock (No. 2), tomato purée (No. 1), one-half pound lean beef, six large onions, 4 ounces butter, four tablespoons flour or two tablespoons corn starch, one-half teaspoon paprika, one teaspoon caraway, one-half teaspoon marjoram, one-quarter teaspoon thyme, one clove of garlic.

Mince the onions, fry to a light brown in the butter, add the beef cut into small dice, then the paprika, and the flour. Stir well while cooking. Add the soup stock and tomato purée, and simmer for 15 minutes. Then add the spices which have been ground fine, and the garlic, crushed. Simmer for an hour.

Artichoke Purée

One can chicken broth (No. 2), one pint cream sauce, three ounces butter, artichoke leaves, one-half pint cream, salt, pepper.

To the chicken broth add the artichoke leaves crushed, and the cream sauce, cook half an hour if the raw leaves are used, a less time if the canned are used. Strain through sieve, heat, and add the butter, cream, and seasoning.

Clam Broth

One can clam broth, celery, parsley, cream.

The broth should be heated with a couple of celery stalks and some sprigs of parsley for about 10 minutes, then the bouquet is removed, and the broth seasoned with cayenne. A spoonful of whipped cream is added to each cup.

Consomme, Garnished with Leftover Vegetables

One can consomme (No. 2), two tablespoons tapioca, two tablespoons asparagus, one tablespoon peas, one tablespoon string beans.

Cook the tapioca in the consomme for about 15 minutes. When ready to serve, add the peas, the beans cut into disks, and the butt ends of the asparagus, also cut into thin disks. If it be desired to have all green, the green asparagus may be used.

Carrot Soup

One can bouillon (No. 2), one can carrots (No. 1), four tablespoons tapioca, one ounce butter, seasoning.

Cook the tapioca in the bouillon. Heat the carrots, force through ricer, add the butter and seasoning, and add to the bouillon just before serving.

Cream of Tomato

One shinbone, one can tomatoes (No. 2½), one tablespoon corn starch, four ounces butter, one-half pint cream, salt, soup bouquet.

Soup bouquet—one sprig parsley, one stalk celery, one small sprig of thyme, one bay leaf.

Cover the shinbone with cold water, salt well, and add a generous soup bouquet. Simmer slowly until the meat drops from the bone then strain through cheese cloth. Cool, remove the fat, then add the tomatoes, simmer for half an hour, strain, then put over the flame to thicken with the cornstarch. When ready to serve, add the butter and cream. Toasted rolls may be served with this soup for a luncheon dish.

Sweet Potato Purée

One can chicken broth (No. 1), one-half can sweet potatoes (No. 3), one quart milk, one-half pint cream.

Heat the potatoes, mash fine, add to the hot milk and broth. When ready to serve, strain, and add the cream.

Quickly Prepared Soup

One teaspoon meat extract (semi-solid), one-half package gelatin, two branches parsley, one onion, three cloves, celery seed.

Put the onion sliced, the parsley, cloves, and a few celery seed in about a quart of water to boil for about 15 minutes, add the gelatin, and when dissolved, strain, pressing slightly. To the liquid add the meat extract, salt and pepper, and reheat. This may be varied by using more meat extract, or by thickening slightly with arrowroot, or by adding cooked rice, barley, etc.

Consomme with Carrots

One can consomme (No. 2), two tablespoons of carrots, ten quenelles chicken forcemeat.

The carrots are cut into disks, fried in butter, then added to the hot consomme with the quenelles, the cooking of the quenelles being done in the soup. (See recipe for quenelles.)

Purée of Beans

One pound green beans or one can (No. 2), one can white consomme (No. 2), one ounce butter, two medium-sized potatoes.

Parboil the beans for 5 minutes, then drain. Melt the butter in a stew-pan, add the beans and stew for 10 minutes, add the consomme, and the potatoes minced. Simmer slowly until the vegetables are tender, force through sieve, bring to the consistency desired with scalded milk, and add a small bit of butter just before serving.

Purée of Green Peas

One can peas (No. 2), one can bouillon (No. 2), two ounces butter.

Heat the peas, drain, mash, mix with the consomme and strain. Reheat adding the butter. A few of the peas may be reserved for a garnish.

Purée of Tomatoes

One can tomatoes (No. 2½), one can bouillon (No. 2), one ounce bacon, one small carrot, one small onion, bay leaf, thyme, two ounces rice, three ounces butter.

Mince the bacon, carrot, onion, and a piece of bay leaf and thyme, and sauté in an ounce of butter, then add the tomatoes, rice, and half a teaspoon of sugar, and the bouillon, and simmer until the rice is soft. Force through a sieve, reheat, and add the rest of the butter when ready to serve.

SOUP ACCESSORIES

Pulled Bread

Remove the crust from freshly baked bread, and with a fork pull the the crumb into irregular pieces. Place on paper in a pan and dry in the oven with the door open, then close the door and brown.

Crisped Bread

Cut stale bread which has had the crust removed into very thin slices. Dry on paper with the oven open. When dry, close the door and brown.

Crisped Crackers

Toast crackers in the oven until crisp; or they may have a bit of butter placed in the center, and then heated.

Bread Sticks

Four ounces condensed milk, four ounces butter, one-half teaspoon salt, one-half compressed yeast cake, one egg, one quart sifted flour.

Add one cup hot water to milk, then the butter and salt, and when lukewarm the yeast, the egg well beaten, and the flour. Mix well, let rise, shape, let rise again. Start the baking in a very hot oven, then reduce the heat, so that the sticks will be dry and crisp. To form the sticks, shape pieces of dough into small biscuits, then with the hands roll on unfloured board until the pieces are about 8 inches in length. Keep the pieces of uniform size and with blunt ends.

Cheese Straws

Three ounces grated cheese, two tablespoons flour, two ounces butter, one egg yolk, salt, pepper, cream to moisten.

Mix the dry ingredients well, then add the egg yolk and the cream. Roll out very thin, cut into rings and then strips. Bake until crisp and yellow. Place the strips in the rings and pile on a plate. They may be served hot or cold.

Noodles

Add one teaspoon salt to an egg, beat slightly, then add sufficient flour to make a stiff dough. Knead and roll to wafer thinness. Cover on board with a towel, and let stand for one-half hour, then cut into fancy shapes with a small vegetable cutter. Dry and when required, cook in boiling water for 15 minutes.

Noodle Balls

Make a paste as for noodles. When rolled thin, fold the paste double, and cut tiny circles with a cutter, and fry brown in hot fat. Drain on paper. They should not be put in the soup as they soften too quickly.

NOTE.—The recipe for noodles is given, but the package noodles are much more convenient. If noodles are to be cooked in the soup, they should be parboiled for a few minutes to remove any particles of flour, etc., on the outside, then drained and cooled, before being added to the soup.

Croutons

Cut stale bread one-half inch thick, and remove the crust. Spread with butter, then cut into squares. The squares may be baked in the oven, fried in deep fat, or sautéd in butter. They should be put in soup at the time of serving.

Egg Balls

Five eggs, one teaspoon salt, pepper, cayenne, parsley.

Boil four of the eggs hard, then mash the yolks to a paste and add the salt, pepper, parsley, cayenne, and the well beaten raw egg. Shape into tiny balls. Roll in flour, fry in deep fat, or they may be sautéd in butter, or poached in salted water.

Bread Crusts

Cut small rounds from the crusts of French rolls and dry in the oven. Serve hot in the soup.

Cheese Sticks

Cut stale bread into one-half inch slices, remove the crust, and cut into strips. On these spread a mixture made in the following proportions—2 ounces of grated cheese, 2 ounces of butter, and a dash of paprika, the whole creamed until smooth. Set the strips in the oven to melt the cheese, or they may be left until brown.

Chicken Forcemeat Balls

Two chickens' breasts, one-half tablespoon salt, one-eighth teaspoon pepper, two ounces butter, four ounces stale bread crumbs, one-half pint cream, one-half blade mace, three egg whites.

Chop the chicken very fine, and add to it the salt and pepper. Cook the crumbs, cream, and mace until a smooth paste is obtained, remove from the fire and add the butter, the seasoned meat, and the eggs well beaten. Stir until thoroughly blended. When cold, form into very small balls, dip in egg, then in crumbs. They may be browned in the oven, sautéd, fried, or poached.

Chicken Forcemeat

One pound chicken, two egg whites, salt, pepper, nutmeg, one pint double cream.

Cut the chicken into small pieces, pound in a mortar until reduced to a paste, or run through food chopper, using the fine cutter, add the slightly beaten egg-whites, and seasoning. Force through a ricer, and add the cream which should be ice-cold, gradually.

Other meats may be substituted for the chicken, in the above recipes.

Egg Dumplings

One-half pint milk, two eggs, one-half teaspoon baking powder, salt, flour.

To the eggs well beaten, add the milk, then the flour to which has been added the salt, and baking powder. Make into a stiff batter, and drop by spoonfuls into the boiling soup. Keep covered for 10 minutes.

Mushroom Forcemeat

One can mushrooms (No. 1), four ounces fine bread crumbs. two egg yolks, one teaspoon butter, salt, pepper, mace, nutmeg,

Drain the mushrooms, mince, add the other ingredients, the egg last to bind. Moisten with the mushroom liquor. Either pound well or force through a ricer or food chopper, so as to make smoother. They may be poached for soup, or fried for meat garnish.

Cheese Balls

One-quarter pint milk, one-half cup flour, one egg, one ounce butter, one ounce cheese, salt, cayenne.

Mix all the ingredients except the egg in a double boiler, and cook until smooth, then add the well beaten egg. Place in a shallow pan to cool, cut into disks or triangles, cook for about 5 minutes in the boiling soup before serving.

Quenelles

One can chicken minced (8 ounces), one teaspoon parsley, salt, pepper, nutmeg, egg, crumbs.

Mix the chicken and seasoning thoroughly, form into small balls dip in egg, roll in fine crumbs, fry in hot fat, and add to the soup when ready to serve.

Dumplings

One cup flour, one teaspoon baking powder, salt.

Add the salt and baking powder to the flour, sift twice, then add water to make a stiff batter. Drop by spoonfuls into the boiling soup and keep covered for 10 minutes.

German Paste

One pint flour, three eggs, one ounce butter, salt.

Sift the flour twice, then add the well beaten eggs, salt, butter, and water to make a stiff paste. Mix thoroughly, then roll out, cut into strips one-half by 2 inches, let stand for an hour to dry, then turn and dry the under side. Poach in boiling salted water for about 10 minutes, place in a current of warm air to dry. Serve with clear soup.

Fried Gravy Crusts

Toast crusts brown, then put in a pan and pour some stock over them, simmer until the stock is dried and the crusts crisp. The crusts are placed in a tureen and the soup poured over them. The crusts enrich a weak soup.

Vegetable Cream

One can of vegetable (No. 1), two eggs, one can stock (No. 1), nutmeg.

Heat the vegetables, pass through sieve, and add the eggs well beaten, a pinch of nutmeg, and the stock. Mix thoroughly, then place in a mold, and the mold in a pan of water to cool. When cold, remove from the mold and cut into dice. The dice may be added to the soup. The color of the cream may be varied by the use of different vegetables, white or green asparagus, the inner, or outer parts of carrots, etc.

Cheese Crackers

Spread crackers with partly melted butter, sprinkle with paprika, and place a small mound of grated cheese in the center. Heat in the oven until the cheese is melted.

Egg Threads

Egg threads are made by beating the desired number of eggs, seasoning with salt and pepper, and pouring through a strainer into the boiling soup. The eggs pass more freely into the soup if they are strained twice before adding to the soup.

Thickening, etc.

The thin soups may be thickened with arrowroot or sago starches by dissolving the starch in a small quantity of the cold soup to avoid lumps, mixing with the soup and heating. To thicken with egg, beat the yolks light, add some cold soup, then mix with the soup to heat, but not to boil, as the eggs may separate. The whipped whites may be served on top. Cooked rice or tapicoa may be added, or vegetables as peas, beans, etc., or the larger forms may be diced or cut into desirable pieces.

ENTREES

Chicken Terrapin

One can chicken (No. 1), two hard boiled eggs, one-half pint cream, one-half pint milk, one-half pint sherry, two ounces butter, one tablespoon flour, salt, cayenne, mace.

Make a sauce by melting the butter, add flour, stirring constantly, then the milk gradually, keeping the sauce smooth, then the cream, seasoning, and chopped eggs, add the chicken, cut in large dice, simmer for 10 minutes. When ready to serve, add the wine.

Chicken and Oysters

One can chicken (No. 1), one can oysters (No. 2), two ounces butter, one tablespoon flour, two hard boiled eggs, one tablespoon parsley, one pint milk.

Heat the chicken, cut into neat slices. Heat the milk in a double boiler, add to it the butter and flour rubbed together, the chopped eggs, and seasoning. Drain the oysters, and add them to the sauce. When hot, pour over the chicken. This may be served in a mound of rice.

Creamed Chicken

One can chicken (8 ounces), two ounces butter, four minced olives, one wineglass sherry, two egg yolks, one-half pint cream.

Cut the chicken into neat slices or dice, and heat in the butter, season with salt and pepper, add the olives and wine, cook a few minutes, then add the eggs beaten in the cream. Stir and serve as soon as it thickens. This may be served on toast or in patty cases.

Salmi of Duck

One can duck (8 ounces), one-half can mushrooms (No. 1), one cup brown sauce, one tablespoon ketchup, one-half teaspoon onion juice, one-half teaspoon lemon juice.

Heat the duck, cut into regular pieces, and the mushrooms in the sauce. Add the seasoning and salt and pepper to taste.

Chicken Croquettes

One can chicken (No. 1), one ounce butter, one tablespoon flour (scant), one-half pint milk, one-half teaspoon onion juice, one egg, two teaspoons lemon juice, salt, pepper, nutmeg, beaten egg, bread crumbs.

Make a sauce of the butter, flour, and milk, then add the seasoning and the chicken, which has been passed through the meat chopper. When heated thoroughly, remove from the fire and add the well beaten egg. When cool, shape in cylinders, dip in beaten egg, then roll in bread crumbs. Fry brown in hot fat, drain on soft paper.

Meat Croquettes

Turkey, veal, lamb, mutton, or beef may be substituted for the chicken.

Creamed Chicken and Mushrooms

One can chicken (No. 1), one can mushrooms (No. 1), one cup white sauce.

Make white sauce with half cream and half liquor from mushrooms. Cut the chicken into dice, and the mushrooms, if large, into quarters. Heat in the sauce, and serve in patty cases.

The mushrooms may be omitted, and the sauce made with half milk and half cream, or with evaporated milk. Flavor with nutmeg. Any of the canned meats may be substituted for the chicken.

Beef Pilau

One can beef (8 ounces), one can tomatoes (No. 2), one tablespoon butter, one-half cup rice, one onion.

Lightly brown the chopped onion in the butter, then add the sliced beef, seasoned with salt and pepper. Cook slowly for 10 minutes. Put rice in cold water, boil for 5 minutes, then drain and turn cold water over it to separate the grains. Add the rice to the meat and pour over them the tomato and a cup of boiling water. Cook slowly until the rice is soft.

Beef Fricassee

One can beef (8 ounces), one pint of stock, one ounce butter, one tablespoon flour, one teaspoon onion juice.

Make a brown sauce of the butter, flour, and stock (the extract of beef may be used instead of stock. The proportions to use are given on the package). Season with salt, pepper, and onion juice. Add the beef cut in thin slices, and simmer for a few minutes. Serve with a border of mashed potatoes.

Creamed Corned Beef

One can corned beef (8 ounces), one ounce butter, one tablespoon flour, one teaspoon onion juice, celery salt, one-half pint milk.

Make a white sauce and season with celery salt, pepper, and onion juice. Add to the hot sauce the diced meat. This may be put in a casserole, covered with buttered bread crumbs, and browned in the oven.

Meat Pie

One can beef (8 ounces), two cups mashed potatoes, one-half teaspoon onion juice, one teaspoon chopped parsley.

Butter a shallow dish, line with the mashed potatoes about an inch thick, fill with the beef cut into slender inch lengths, season with salt, pepper, and onion juice, and moisten with gravy. Cover with the mashed potatoes. Bake until the top is a light brown.

Creamed Salmon in Rice

One can salmon (No. 1), two tablespoons flour, two ounces butter, one tablespoon finely chopped onion, two tablespoons finely chopped olives, one-half pint cream, salt, paprika, three egg yolks.

Cook the onion until yellow in the butter, then add the flour and cream, previously blended, and cook for five minutes. Season and add the egg yolks, olives, and the salmon flaked. Line a mold with rice, fill with the creamed salmon, cover the top with rice, and steam a half hour. Serve with Bearnaise tomato sauce.

Stuffed Potatoes

One can roast beef (8 ounces), one can tomato purée (No. 1), one egg, three olives, baked potatoes, one ounce butter, salt, pepper.

Put the butter, chopped beef, and tomato in a spider, cook until thick, add the beaten egg, chopped olives, and seasoning. Scoop out the potatoes and add to the meat, then stuff the shells with the mixture. Serve very hot.

Meat Rissoles

Can meat, stock or gravy, pie crust, one egg.

Mince the meat, season with salt and pepper or paprika, moisten with stock or gravy. Roll pie crust very thin, cut in rounds. Put a spoonful of the mixture on each round, wet the edges, and press them lightly together. Brush the outside with slightly beaten egg white, and fry until brown. Drain on soft paper, and serve hot.

Lamb and Peas

One can lamb (8 ounces), one can peas (No. 2), two cooked potatoes, one onion, stock, one cup buttered crumbs.

Dice the lamb and potatoes, mix with the chopped onion, season with salt and pepper, and lastly mix in one-half of the peas. Make a mound in a baking dish, cover with the crumbs, and bake until brown. When ready to serve, pour around the remainder of the peas, seasoned with salt and pepper, and heated.

Meat Rolls

One can beef (1 pound), one onion, seasoning, cabbage leaves.

Make a soft hash of the meat, onion, and seasoning. Spread the mixture on small, firm cabbage leaves, roll them up and tie with string. Place close together in a shallow pan, cover with soup stock or water and butter, and cook for about half an hour. Thicken the liquor and use as a sauce, garnishing with peas or string beans.

Other meats may be used, instead of beef, but if chicken be used, omit the onion.

Lamb Croquettes

One can lamb (8 ounces), one cup cooked rice, one-half pint white sauce, one tablespoon lemon juice, one tablespoon parsley.

Pass the lamb through a meat chopper, mix with the rice, chopped parsley, lemon juice, and the hot white sauce. Season with salt and pepper. When cool, form into cone shape, roll in flour, egg, and very fine crumbs, and fry. Garnish with sprigs of mint or parsley.

Crabs in Ramekins

One can crab meat (No. 1), one can mushrooms (No. 1), cream sauce, mushroom ketchup.

Cut the crab meat and mushrooms into uniform pieces, and add to them a rich cream sauce. Season with mushroom ketchup, and serve in ramekins.

Fish Roe Croquettes

One can fish roe (8 ounces), two egg yolks, one cup cream sauce, one tablespoon parsley, salt, pepper, one teaspoon lemon juice.

Separate the roe into small pieces, and add the egg yolks, seasoning, and sauce, and mix thoroughly. Shape into cylinders or pyramids, brush with white of egg, then crumb and fry.

Italian Chicken

One can chicken (1 pound), one tablespoon olive oil, one teaspoon vinegar or lemon juice, one small can bouillon, one-half teaspoon onion juice, salt, pepper, parsley, fritter batter.

Cut the chicken into inch pieces, and marinate in the oil, vinegar, onion juice, pepper, and salt for one-half hour. Sprinkle with the chopped parsley, dip in the batter, and fry in lard. Serve with an Italian sauce, made by chopping fine one tablespoon parsley, one small onion, one-half can mushrooms, one glass of white wine, one-half teaspoon of kitchen bouquet. Cook until reduced, then add salt, pepper, one tablespoon olive oil, and one cup of bouillon. Simmer, then thicken with one ounce butter, rubbed with one tablespoon of flour.

Grilled Sardines (Large)

One can sardines (1 pound), one can mushrooms (pieces, No. 1), parsley, butter, pepper, salt.

Scrape the fish free from skin and wipe dry. Roll each fish in melted butter, season with cayenne pepper and salt. Cover with finely chopped parsley and chopped mushrooms. Wrap each fish in oiled paper and heat in the oven. Serve on rectangular strips of toast, slightly larger than the fish.

Deviled Sardines

One can sardines in mustard (1 pound), Worcestershire sauce, anchovy sauce, butter.

Roll each fish in a mixture of Worcestershire sauce, anchovy sauce, and melted butter. If the mustard sardines are not used, add mustard to the sauce. Lay each fish on a slice of toast, place in a hot oven for about five minutes. Serve hot.

Salmon Balls

One can salmon (8 ounces), one cup mashed potatoes, two eggs, oil, pepper, salt, breadcrumbs.

Drain the salmon, shred, add the potatoes, one egg and seasoning, and moisten with oil. Form into balls, coat with egg and crumbs. Fry in deep fat until brown, and drain on paper. Serve hot and garnish with lemon points and slices of cucumber.

Spiced Tongue

One can tongue (1 pound), one teaspoon ground allspice, one-half teaspoon ginger, one-half teaspoon pepper, one onion, one-quarter pint vinegar, one-half cup raisins, one ounce butter.

Mix the allspice, ginger, and pepper and rub over the tongue, then roll in flour. Fry the onion, sliced, in the butter, then fry the tongue. When brown take out the tongue, and make a sauce with the butter and onion in the pan, a tablespoon of flour, and a pint of water. Put the tongue back in the sauce, add the vinegar and raisins, and simmer until tender.

Sardine Loaf

One can large sardines (1 pound), one egg, corn meal or cracker crumbs, two ounces melted butter.

Cut the sardines into small pieces, and mix with them the butter, crumbs, cayenne pepper, and salt to taste. When well mixed, turn into a mold, cover, and steam one hour. Slice for sandwiches, or serve cold as a luncheon dish.

Fried Sardines

One can sardines (1 pound), one egg, corn meal or cracker crumbs, olive oil.

Dip the fish into beaten egg, roll in cornmeal or cracker crumbs, and fry in olive oil until brown and crisp. Serve on slices of hot toast and garnish with slices of lemon.

Creamed Chicken and Peas

One can chicken (8 ounces), one can peas (No. 2), one-half pint milk or cream, two ounces butter, two tablespoons flour, salt, pepper.

Make a cream sauce, then add to it the chicken cut in dice and the peas freed from their liquor. Serve hot with toast triangles.

Creamed Salmon

One can salmon, one ounce butter, one tablespoon flour, salt, pepper, paprika, one teaspoon lemon juice, one-half pint milk.

Make a sauce of the butter, flour, milk, and seasoning. Then add the salmon, cut into regular pieces, and heat,but not boil. Take out the salmon, place in a hot dish, add the lemon juice to the sauce, and pour hot over the salmon. Garnish with sprigs of parsley.

Fish with Italian Sauce

One can fish (No. 1), one can tomatoes (No. 2), one onion, one-quarter pint olive oil, one clove, one bay leaf, salt, pepper.

Fry the sliced onion in the olive oil and when brown add the clove, bay leaf, tomatoes, salt, and pepper. Cook, then add the fish.

Spanish Tongue

One can tongue, one can red peppers, one can ripe olives, one teaspoon onion juice, two tablespoons vinegar.

Cut the tongue into thin slices and pour over them the following sauce: Run the peppers through a chopper, add salt to taste, and the onion juice, then sauté for five minutes When cold, add the vinegar and the ripe olives.

Mexican Meat Balls

One can meat (8 ounces), one can tomato purée (No. 1), one small onion chopped, one-half cup corn meal, two eggs, one can beef broth (No. 2).

Mix the minced meat (beef, veal, or mutton) with the tomato, onion, cornmeal scalded, pepper, and salt. Bind with the eggs and form into balls the size of a walnut. Roll the balls in flour and boil in the beef broth for fifteen to twenty minutes. Serve with the broth thickened for a sauce.

Deviled Meat

One can meat (1 pound), two tablespoons dry mustard, three tablespoons flour, one teaspoon butter, two eggs, one teaspoon olive oil, one teaspoon vinegar, cayenne pepper.

Make a batter of the mustard, flour, eggs, salt, pepper, oil, and vinegar. Cut the meat (any kind) into slices, soak in the batter, then fry in lard. Add the batter that is left to a cup of soup stock or water, add the butter, heat slowly to thicken, and serve as a gravy over the meat.

Pilchers

One can sardines (1 pound), bread, one can pimienta (No. 1), Parmesan cheese.

Skin and bone the sardines and put on unglazed paper to drain. Cut strips of bread longer and wider than the sardines, and fry in olive oil until a light brown. Lay a sardine on each piece and heat in the oven. When ready to serve, sprinkle with the grated cheese, and garnish with strips of pimientas.

Lobster

One can lobster, one small onion, two ounces butter, two tablespoons flour, one can tomato pulp (No. 1), two tablespoons sherry.

Mince the onion and cook until yellow in the butter, then stir in the flour, and blend. Then pour in the pulp slowly, stirring constantly. Season with paprika and salt and when at the boiling point, add the lobster cut into small pieces. When at the boiling point again, add the sherry and serve.

Salmon Timbales

One can salmon (No. 1), one can stock (No. 1), one-half teaspoon gelatin, beets, turnips, mashed potatoes.

Drain the salmon and shred. Dissolve the gelatin in the stock, which has been reduced one-half, and when cool pour sufficient into timbale molds to cover the bottom. Set on ice to harden. Then ornament the bottom and sides with the beets and turnips cut into fancy shapes, and when firm put a spoonful of mashed potatoes in, then fill with the salmon after which pour over the remainder of the stock, and let it harden. When ready to serve, unmold by wrapping a hot cloth about each mold. Serve on lettuce with mayonnaise.

Polentas

One can Hamburger steak (1 pound), one egg, one large onion, parsley, bread crumbs.

Mix the meat, well beaten egg, minced onion, and parsley, and a few bread crumbs. Roll into balls and simmer for about an hour in the following sauce:

One onion, two bay leaves, one can tomatoes (No. 2), or small can tomato pulp (No. 1), two green peppers, one teaspoon butter.

Cook the ingredients, except the butter, in half a pint of water, and when the onion is soft, pass through a colander and return to the fire. Then add the butter and the meat balls, and cook slowly. Serve the sauce with the balls, and garnish with watercress.

Fish Ramekins

One can fish (8 ounces), one tablespoon parsley, white sauce, salt, pepper.

Drain the fish, shred, then add the minced parsley, salt, pepper, and enough white sauce to moisten. Fill into buttered ramekins, set in a pan of hot water, and bake for half an hour.

Fish Roe Ramekins

One can roe (8 ounces), one tablespoon dried bread crumbs, one ounce butter, one tablespoon minced parsley, one egg yolk, salt, pepper, cream.

Mix the ingredients with enough cream or milk to moisten, then fill greased ramekins, set in pan of hot water in oven for about half an hour. Serve with tomato sauce.

Ham and Sausage

One small can ham (8 ounces), one can sausage (8 ounces), one can tomato pulp (No. 1), parsley, two onions, one rather small pepper, one cup rice.

Cut the ham into dice and sauté with the sausage, sliced onions and pepper, and the minced parsley. Then add the tomato pulp, a pint of water, and the rice, which has been soaked. Cover and cook slowly without stirring. Salt to taste and serve hot.

Veal Terrapin

One can veal (No. 2), six eggs, hard boiled and quartered, two ounces butter, one tablespoon onion chopped, one tablespoon flour, one tablespoon mushrooms chopped, one-half pint cream, one-half pint stock, one bay leaf, one clove, small piece stick cinnamon, one teaspoon lemon juice, two tablespoons wine.

Fry the onion in the butter without browning, add the meat cut into dice, and cook until slightly browned; add the flour and stir until browned, then add the stock (or water), stiring until it thickens, after which add the bay leaf, clove, and cinnamon. Simmer for half an hour. Remove the seasonings, and add the eggs, cream, and mushrooms, bring to the boiling point, then add the lemon juice. Take from the fire, add the wine, and serve at once.

Turkey

One can turkey (1 pound), one ounce butter, one tablespoon flour, two egg yolks, one-quarter pint white stock, one-quarter pint cream, salt, paprika, nutmeg, onion juice.

Make a sauce of the butter, flour, stock, cream, and seasoning. Add the turkey cut into neat pieces, and cook about five minutes. When ready to serve, add the well beaten egg yolks.

Italian Cakes

One can chicken with veal mixture, one can artichoke hearts, olive oil, one egg, spaghetti, tomato sauce.

Mince the meat and artichokes, add salt and pepper and the egg. Make into small cakes or cylinders, dip into plain batter, and fry in olive oil. Serve on a bed of spaghetti mixed with a tomato sauce.

Shrimp Fricassee

One can shrimp (No. 1), one can tomatoes (No. 2), one onion, one clove of garlic, one ounce butter, one tablespoon flour, one teaspoon salt, red pepper.

Brown the butter and flour, then add the onion sliced, tomatoes, salt, a pinch of red pepper, garlic, a pint of hot water, then the shrimp. Cook slowly for about an hour.

Oyster Rabbit

One can oysters (No. 1), one ounce butter, one-half pound cheese, one saltspoon salt, cayenne, two eggs.

Melt the butter, then add the cheese cut into small pieces. While the cheese is melting, beat the eggs lightly, add to them the oyster liquor, then the oysters. When hot, serve on squares of toast.

Creole Lamb Hash

One can lamb (1 pound), three medium-sized potatoes quartered, two green peppers, minced, seasoning.

Chop the lamb and heat in a double boiler with stock or water to moisten. Fry the tomatoes and peppers and add to the lamb, seasoning well. Make a bed of rice on a dish and pile the hash on top.

Chicken Ramekins

One can chicken (8 ounces), one egg yolk, one tablespoon minced parsley, one ounce butter, one tablespoon bread crumbs, salt, pepper.

Cut the chicken into small pieces and mix with it the other ingredients. If not sufficiently moist, add cream. Mix well. Put into greased ramekins, and set in a pan of hot water in the oven for about half an hour.

Clam Croquettes

One can clams (No. 1), three tablespoons flour, one teaspoon chopped parsley, one ounce butter, two egg yolks, salt, cayenne.

Add milk to the clam juice so as to make half a pint. Heat the juice and thicken with the butter and flour, then add the eggs, cook a minute longer, then add the parsley, seasoning, and the clams chopped fine. Mix, then pour into a shallow pan to cool. When cold, form into balls, dip in eggs and crumbs, and fry in hot fat.

Chicken with Sauce

One can chicken (1 pound), two ounces butter, one tablespoon cornstarch, two egg yolks, salt, pepper, one-half cup cooked carrot, one-half cup cooked peas, one teaspoon lemon juice, one-half tablespoon minced parsley, one-half pint cream.

Cut the chicken into neat slices and arrange on a hot platter. Make a sauce of butter, cornstarch, and stock or water, and add to it the carrot, cut in fancy shapes, the peas, lemon juice, eggs, salt, and pepper. Pour around the chicken, then sprinkle with the parsley.

Cannelon of Beef

One can beef (1 pound), one can ham (5 ounces), one egg, one and one-half teaspoons salt, one-half teaspoon pepper, thyme, savory, lemon rind.

Chop the meat and add to it the egg well beaten, salt, pepper, pinch of thyme, savory, and the grated lemon rind. Make into a loaf, wrap in buttered paper, and bake about three-quarters of an hour. Make a brown gravy seasoned with ketchup to pour over the loaf.

Meat Curry

One can minced beef (1 pound), one onion, six sweet almonds, two eggs, one-quarter pint milk, one ounce butter, one teaspoon curry, one lemon.

Fry the sliced onion, soak a small slice of bread in milk, grate the almonds, beat the eggs in the milk, mix all together with the meat, butter, and curry. Grease a pudding dish with butter, squeeze into it the juice of a lemon, then turn in the mixture. Bake in a moderate oven, and serve hot with rice.

Baked Sweetbreads

One can sweetbreads (1 pound), one onion, one carrot, parsley, stock.

Slice the onion and carrot and mince the parsley into a baking dish. On top of these place the sweetbreads, pour over sufficient stock to cover, and bake in a moderate oven, basting often. Serve with mushroom sauce.

Chicken in Spinach

One can chicken (1 pound), one can spinach (No. 2), cream sauce, mace, egg.

Heat the spinach in a double boiler with a blade of mace. Line a mold with slices of the egg, hard boiled; in this place the spinach in a thick layer. Fill the center with the chicken diced and in a cream sauce, cover with the spinach, heat in the oven.

VEGETABLES

Artichokes

Artichokes may be served whole or cut in halves or quarters. The number in a can varies with the size of the can. The artichokes are most easily heated by placing the can before opening in a vessel of hot water. The edible part of the artichoke consists of the large receptacle and the fleshy base of the bracts or leaves. They may be served cold, or hot with Bechamel sauce.

Genoese Artichokes

One can artichokes, one ounce butter, one tablespoon flour, pepper, salt, one can bouillon (No. 1), one teaspoon tarragon vinegar, two egg yolks.

Sauce: Mix the flour, salt, and pepper and cook in the butter, then add the bouillon and vinegar, and when ready to serve, add the eggs. Heat the artichokes, drain by turning leaves down, cut in quarters, and pour the sauce over them.

Artichoke Hearts

The artichoke hearts may be warmed in the can or in a saucepan, or sautéd and served with melted butter, Bechamel, or Hollandaise sauce. They may be served cold with tartar sauce.

Asparagus and Cheese

One can asparagus (No. 2½), cheese, butter.

Heat the asparagus in the can, then drain, arrange in layers, the heads one way, with grated cheese between, and pour over them very hot butter.

The canned asparagus is much superior to that in the market, as it is canned immediately after cutting. That found in the market has been cut at least twenty-four hours, usually much longer. Asparagus gradually becomes tough and bitter after cutting, and the longer it is held, the more pronounced are these features.

Stuffed Artichokes

Artichokes, forcemeat, butter.

Drain the artichokes, remove the middle leaves and the chokes. Fill with a well-seasoned forcemeat, and bake long enough to cook the meat. Serve with melted butter.

Asparagus

One can asparagus (No. 2), white or Hollandaise sauce.

The asparagus is drained, placed on buttered toast, and white or Hollandaise sauce served, to which has been added the juice of a blood orange, and a small amount of the grated rind. If it is desired to serve the asparagus in pieces, the hotel or soup stock asparagus will answer the purpose as well and is cheaper. Hotel stock consists of the irregular and broken stalks that cannot be packed in the regular grades.

Asparagus in Croustades

One can asparagus, hotel stock (No. 2), one loaf bread, one-half pint white cream sauce.

Cut slices of rather stale bread, cutting out the center but not quite through with a small biscuit cutter, brush with butter, and brown in the oven. The cylindrical loaf is more ornamental than the square. Drain the asparagus, cut in uniform pieces, pour over them the thick sauce, and serve in the croustades.

Tomatoes

One can tomatoes (No. 3), pepper, salt, croutons.

Season the tomatoes and heat. Serve garnished with the croutons.

String Beans

One can string beans (No. 2), two ounces butter, salt, pepper, nutmeg, one-half pint white sauce, one tablespoon chopped parsley, and the juice of one lemon.

Make a sauce by melting the butter, adding the white sauce, salt, pepper, and nutmeg, then the drained beans and heat. When ready to serve, add the parsley and lemon juice.

String beans may be served by heating in the can, draining and adding butter, salt, and pepper, or with vinegar.

Lima Beans

One can lima beans (No. 2), two ounces butter, salt, pepper, parsley chopped, and lemon juice.

Drain the beans and put in a pan with the butter, salt, and pepper. Heat for a few minutes, then add the chopped parsley and lemon juice.

They may be served by heating in the can, draining, then adding butter, salt, and pepper.

Celery with Cream

One can celery (No. 2), two ounces butter, one tablespoon cornstarch, nutmeg, one can consomme (No. 1), two egg yolks, three tablespoons cream, croutons.

Heat the celery in the can. Make a sauce by heating the butter, add the cornstarch or flour. Then moisten with the consomme, and cook until somewhat reduced. Add the drained celery cut into lengths and heat again. Then add the nutmeg and the beaten egg yolks in the cream. Serve garnished with the croutons.

Carrots with Cream

One can carrots, disks (No. 2½), three tablespoons Bechamel sauce, salt, pepper, nutmeg, one-half pint cream, chopped parsley.

Heat the carrots, drain, then add the sauce, seasoning, and cream. Heat thoroughly, place in a hot dish and sprinkle the parsley over them.

Spinach

One can spinach, salt, pepper, nutmeg, one and one-half ounces butter, bread croutons.

Drain the spinach, chop fine, season with salt, pepper, and nutmeg. Heat in double boiler, and when hot, add the butter. Serve garnished with croutons.

Kornlet Fritters

One can kornlet (No. 2), one-quarter pint milk, one egg, pepper, salt, one teaspoon butter, two teaspoons baking powder, flour.

To the kornlet add the pepper, salt, melted butter, beaten egg, milk, and sufficient flour to thicken. Drop by the spoonful into hot fat, and fry until brown. The kornlet is composed of the grated kernels of the corn, having the hulls removed.

Baked Beans

One can beans (No. 2), sliced bacon.

Heat the beans in the can, and while heating, fry thin slices of bacon. Place the beans on a small deep platter, and then arrange the bacon on the top.

Kidney Beans

One can kidney beans (No. 2), sliced bacon.

The kidney beans are prepared with a sauce, so that they may be served the same as the baked beans if they are the main dish for lunch. If served as a side dish, they need only to be heated, as they are usually prepared with a sauce.

Red Kidney Beans

One can beans (No. 2), small onions.

The kidney beans are prepared with a sauce, so that all that is necessary is to heat them. Serve garnished with small onions glazed. To glaze onions, place in a pan with butter, sprinkle with powdered sugar, and place in a slow oven for about fifteen minutes.

Beets

The beets can be obtained in different sizes—less than an inch in diameter, above an inch in diameter, and the large ones sliced. They may be served hot with butter, pepper, and salt, or with hot or cold Bechamel sauce, or with plain or spiced vinegar. The small ones may be used to garnish other vegetables or mixed with them.

Sweet Potatoes

One can sweet potatoes, salt, pepper, butter, powdered sugar.

Remove the potatoes from the can without separating them, cut into slices, sprinkle with salt and pepper, spread with butter, sprinkle with powdered sugar. Brown in a hot oven. Bacon dripping may be used instead of butter.

Sweet Potatoes, Baked

One can sweet potatoes, salt, pepper, butter, sugar.

Heat the potatoes in the can, then mash and add seasoning and butter. Put in a baking pan, dot with butter, sprinkle with sugar, and place in the oven to brown. Tomato ketchup may be served with them, or a hot tomato sauce.

Spaghetti

Spaghetti is prepared with spiced tomato sauce and cheese, so that heating is all that is necessary. It may be placed in a baking pan, and strewn with buttered bread crumbs and grated cheese, and browned in the oven.

Peas, French Method

One can peas (No. 2), one onion, one teaspoon sugar, salt, bouquet.

To a pint of water add the onion, sugar, salt, and bouquet, and simmer for half an hour, then drain off the liquor, discard the onion and bouquet, add the drained and rinsed peas, allowing them to heat slowly, so as to become flavored. The bouquet consists of four sprigs of parsley, one stalk of celery, one bay leaf, one sprig of thyme, and two cloves.

Scalloped Tomatoes

One can tomatoes (No. 3), two cups bread crumbs, salt, pepper, one ounce butter.

Cover the bottom of an earthenware dish with one cup of the crumbs. Pour on these the seasoned tomatoes, and spread over the surface the second cup of crumbs after stirring them in the melted butter.

Peas, alone, or with Egg Plant or French Toast

One can peas (No. 2), one ounce butter, pepper.

Drain the peas, place in pan with butter and pepper to heat. Or the peas may be drained, rinsed under the faucet, then heated in water, and when hot, drained and the seasoning added. The peas may be served on slices of egg plant, fried, or on slices of French toast.

Corn with Cream

One can corn (No. 2), one-half pint Bechamel sauce, one-quarter pint cream, one-half ounce butter, salt, pepper, nutmeg.

Add the other ingredients to the corn and heat in a covered double boiler. It may be heated with only the pepper, salt, cream, and butter.

Spanish Rice

One can bouillon (No. 2), one large onion, one pepper, one saltspoon salt, three tablespoons lard, one-half pound rice, cayenne pepper.

Fry the finely chopped onion until brown, then add the finely chopped pepper and the washed rice. Stir until the rice is slightly brown, after which add the bouillon and the seasoning. Cook until the rice has absorbed the liquid and become rather dry.

Lima Beans

One can beans (No. 2), one ounce butter, salt, pepper, one-quarter pint cream.

Heat the beans, drain, add the butter, seasoning, and cream, and heat again.

Tomatoes with Rice

One can tomatoes (No. 3), one cup rice, one ounce bacon drippings, one can pimientas, one onion, salt, pepper.

Chop the tomatoes, onion, and pimientas fine and sauté in the bacon fat until a light brown, add the seasoning, a pint of water, and the rice which has been soaked until swelled.

Succotash

One can succotash (No. 2), one ounce butter, salt, pepper, nutmeg, one-quarter pint cream.

Heat the succotash in a double boiler, add the butter and seasoning, and when ready to serve, add the cream.

Spanish Okra

One can okra (No. 2), sliced, one can tomato pulp (No. 1), one ounce butter, one onion, one teaspoon salt, one-half teaspoon pepper, one-half teaspoon parsley.

Chop the onion and brown in the butter, add the tomato, the drained okra, and the seasoning. Cover the pan so as to heat thoroughly. Pour into a hot dish and serve with triangles of toast used as a garnish.

Purée of Peas for Garnishing

One can large peas (No. 2), one sliced carrot, one sliced onion one leek, salt, pepper, one stick celery, two sprigs parsley, one clove of garlic, one-half pound raw ham bones, one-half ounce of butter.

Pour the contents of the can into a saucepan and add the other ingredients except the butter, boil for fifteen minutes, remove the ham bones and let the remainder simmer until the vegetables are softened. Press through a sieve into a double boiler, heat, add the butter, and mix thoroughly. The purée may be pressed through a pastry bag into roses and used as a fancy border.

Tomatoes and Peppers

One can tomatoes (No. 3), one can peppers, six onions, one-half ounce butter, salt.

Chop the onion and brown lightly in the butter, then add the tomatoes and peppers cut in small pieces. Bake in a moderate oven.

Hominy

One can of hominy (No. 3), one ounce butter, salt, pepper.

Heat the hominy, then add the butter and seasoning. Serve very hot.

Fried Hominy

One can hominy (No. 3), one-half ounce bacon drippings, salt, pepper.

Heat the bacon fat in a frying pan, put in the hominy so as to be about an inch thick. Let it brown, turn, and brown on the other side.

Okra in Cream

One can okra, whole (No. 2), one ounce butter, one tablespoon flour, one-half pint cream, salt, cayenne pepper, nutmeg.

Heat the okra in the can, drain and pour over a sauce made of the other ingredients.

Cornmeal Mush

One can mush (No. 3), one-half ounce bacon drippings.

Remove the mush from the can, cut into slices a quarter-inch thick, and sauté brown in the fat.

Creamed Mushrooms

One can mushrooms (No. 2), one ounce butter, one tablespoon flour, one-half pint cream, pepper, salt.

Drain the mushrooms and use the liquor from the can for the sauce. Make a white sauce in the usual way, add the mushrooms, heat thoroughly.

Sauer Kraut with Sausage

One can kraut (No. 3), sausage.

Heat the kraut in the can, heap in the center of a platter, and serve surrounded with the sausages broiled. The canned kraut with sausage may be used.

Creamed Cabbage

One can cabbage (No. 2½), one teaspoon butter, one teaspoon flour, one pint milk, salt, pepper.

Drain the cabbage, chop fine. Add to the heated milk in a double boiler the flour, butter, salt, and pepper, rubbed to a paste, and cook until the sauce has thickened. Add the cabbage and heat again. Serve hot.

Stuffed Peppers

One can peppers (eight ounces), one can tomato purée (No. 1), one-half can mushrooms, one can sausage, two egg yolks, salt, pepper, nutmeg, salt pork, one large onion.

Fry the onion, add the mushrooms minced, the sausage, and the tomato purée, mix, then thicken with bread crumbs, which have been seasoned with salt, pepper, and nutmeg, and bind with the egg yolks. Fill the drained peppers with the mixture, set on thin slices of the pork, and bake for fifteen minutes. Before serving pour some of the tomato purée over them, sprinkle with grated cheese, and return to the oven to melt the cheese.

Hungary Onions

One can pimientas (eight ounces), one half pound cream cheese, one large onion, one pint cream, one teaspoon paprika.

Mince the onion and boil until tender. Drain, and add the cheese, cream, the peppers cut into uniform pieces, and the paprika. Serve hot.

Creamed Turnips

One can turnips (No. 2½), one ounce butter, one tablespoon flour, one pint milk, salt, pepper.

Make a white sauce, and to it add the heated, drained turnips. Mix and serve hot.

Mashed Turnips

One can turnips (No. 2½), two ounces butter, salt, pepper.

Drain the turnips, heat in double boiler, mash, leave uncovered to dry them. Add butter and seasoning, cover to heat thoroughly.

Flemish Asparagus

One can asparagus (No. 2½), eggs hard boiled, butter.

Heat the asparagus in the can, serve with half a hard boiled egg to each portion, and a small dish of melted butter. The yolk may be worked into the butter before serving.

SALADS

The making of salads is much simplified and the cost reduced by the use of canned fruits, vegetables, fish, or meat. The food is cooked and there is no waste, as a can containing only the amount needed may be bought. The prepared dressings may also be used, and may be varied by the addition of cream, sour cream, or the materials used in tartar sauce. Instead of onion and garlic juices the prepared seasonings may be used, and as they are in the form of salt, are more easily kept in stock than the fresh bulbs.

Artichoke Salad

The artichokes are ready to serve as they are taken from the can. They may be served cold with a spoon of mayonnaise by the side, or dressed with artichoke dressing. The fleshy receptacle and the thickened base of the scales are the edible parts.

Artichoke Salad

Artichokes, mayonnaise.

One artichoke for each person. Loosen the outer leaves and arrange as a rosette round choke; also take out a few of the central ones, so as to make a place into which the mayonnaise may be placed.

Asparagus Salad

One can asparagus, lettuce, mayonnaise.

Remove the stalks carefully from the can, so as not to break the tips, arrange on lettuce leaves, place a spoonful of mayonnaise near the tips.

Artichoke and Bean Salad

One can artichokes (No. 2), one can string beans (No. 2), one onion, two medium-sized boiled potatoes, celery, mayonnaise.

Mince the artichokes, beans, onion, celery, and potatoes. Season with pepper and salt, and dress with mayonnaise. Garnish with celery tips.

Bean Salad

One can beans (No. 2), one small onion, olives, parsley, French dressing.

Rinse and drain the beans (lima, red kidney, string, or wax may be used), mix with the chopped onion, olives, and parsley. Cover with French dressing. Garnish with ripe olives.

String Bean Salad

One can string beans (No. 2), one cake cream cheese, mayonnaise.

Rinse and drain the beans, marinate with some of the mayonnaise, place on the heart leaves of lettuce. Garnish with a spoon of the mayonnaise on top and three small cream cheese balls, which may be moistened with sherry or with cream to make the balls.

String Bean Salad

One can string beans (No. 2), three hard boiled eggs, French dressing, watercress.

Pour the beans into a strainer, rinse with cold water, drain dry, marinate with French dressing, garnish with the eggs cut into slices, and the watercress.

Mixed Vegetable Salad

One can small kidney beans (No. 2), one can small string beans (No. 2), one can beets (No. 2), lettuce, French dressing.

Arrange a nest of lettuce leaves, place the diced beets in the center, around these the beans, and the string beans as an outer ring. Pour French dressing over them. Tiny beets may be obtained and served whole.

Swiss Beet Salad

One can beets (No. 2), whole peppers, cloves, bay leaves, vinegar, lettuce.

Cut the beets into rather thin slices, sprinkle with salt, whole peppers, whole cloves, and two bay leaves, and pour the vinegar over them. Let stand to season. Serve next day on lettuce leaves.

Cauliflower Salad

One can cauliflower, one can beets, mayonnaise.

Rinse, drain, and divide the cauliflower. Drain the beets, cover with vinegar, sprinkle with salt and pepper, and let stand for a few hours. When ready to use, drain well and cut into strips to garnish the cauliflower. Pour over them the mayonnaise when ready to serve.

Vienna Salad

One can beets (No. 2), three boiled potatoes, one small onion, two hard boiled eggs, salt, pepper, four tablespoons vinegar, one teaspoon made mustard, one raw egg yolk, one ounce butter, one tablespoon parsley.

Slice the potatoes and beets very thin, and the eggs not so thin; chop the onion very fine; mix and season with salt and pepper.

Dressing: Heat the vinegar, add the mustard, and stir in the beaten yolk of the egg, the butter melted, and the chopped parsley. Serve the salad with cold meat.

Spanish Salad

One can chicken (eight ounces), one-quarter pound almonds, one red pimienta, one bunch celery, small canned beets, one-quarter teaspoon salt, one teaspoon curry powder, two tablespoons tarragon vinegar, four tablespoons olive oil, bananas.

Cut chicken and celery into dice, the almonds, pimienta, and onion fine, mix with the salt, curry powder, vinegar, and olive oil. Garnish with sliced beets and bananas.

Cherry Salad, Sweet

One can Royal Anne cherries (No. 2), oranges, one egg yolk, two-thirds cup powdered sugar, vanilla.

Cut the cherries into quarters. Cut the top off the oranges and remove the pulp, saving the shells for baskets. Cut the pulp into neat pieces, and mix with the cherries. Sweeten if cherries are not in syrup. Fill the baskets and place a spoonful of dressing on top.

Dressing: The egg yolk beaten until thick with two-thirds cup of powdered sugar, and flavored with vanilla.

Neapolitan Salad

One can chicken or turkey (eight ounces), three medium-sized potatoes, one-half can beets (No. 2), two hard boiled eggs, capers, lettuce, mayonnaise.

Cut the chicken, cold potatoes, and beets into dice, sprinkle with chopped eggs, salt, and pepper. Serve on lettuce with mayonnaise. Garnish with capers and beet cubes, or tiny whole beets.

Chicken Salad

One can chicken (eight ounces), celery, olives, one small can pimientas, lettuce, mayonnaise.

Cut chicken, celery, and olives into small uniform pieces, and the pimientas into inch strips; mix with mayonnaise. Arrange on crisp lettuce leaves and garnish with whole olives and strips of pimienta.

California Salad

One can crab meat (No. 1), two-thirds cup celery, two tomatoes, French dressing, lettuce, mayonnaise.

Cut the crab and celery into small uniform pieces, the tomato into small sections, and marinate with French dressing. Serve on lettuce with mayonnaise.

Swedish Salad

One can fish (eight ounces, any kind), two hard boiled eggs, olives, capers, gherkins, lettuce, mayonnaise, aspic.

Cut the fish into small pieces, mix with chopped hard boiled eggs, and sliced olives, capers, and gherkins. Sprinkle with salt and pepper. Serve on lettuce with mayonnaise. Garnish with aspic cut into dice.

Oyster Salad

One can oysters, celery, mayonnaise, lettuce.

Drain the oysters, cut into small pieces, and mix with an equal quantity of celery cut into narrow inch lengths. Mix with mayonnaise, place on lettuce leaves, and garnish with a spoonful of firm mayonnaise.

Tuna Salad

One can white tuna (eight ounces), three cups diced celery, French dressing, mayonnaise, lettuce.

Drain the oil from the fish, shred, mix with celery, and marinate with French dressing. Arrange on lettuce, and place a spoonful of firm mayonnaise on top. Unless well drained, the tuna will be oily, as it is packed in oil.

Tuna Salad, Jellied

One can tuna (eight ounces), one-half package gelatin, lemon, parsley, olives, mayonnaise.

Drain the fish, shred, add lemon juice, paprika, and the dissolved gelatin. Mix well and fill individual molds. When the gelatin is set, serve on lettuce and garnish with olives and mayonnaise.

Fish Salad

One can salmon (or other fish) (No. 1), one cucumber, lettuce, mayonnaise.

Drain the fish from the oil, free from skin and bones, then cut into neat pieces (each piece sufficient for a portion). Place on lettuce and garnish with very thin slices of cucumber. Dress with mayonnaise.

Leftover Salad

Small amounts of canned peaches, pears, etc., may be left over. These can be utilized by slicing them neatly, and alternating the different kinds on a lettuce leaf. The syrups may be mixed, boiled down, and then have lemon juice and maraschino or wine added, and poured over the fruit.

Pear Salad

One can pears, maraschino cherries, lettuce, lemon.

Drain the pears, cut in slices, arrange on a lettuce leaf, and garnish with the cherries. Boil the syrup from the pears until it is thick. When cold, add lemon juice and maraschino, and pour over the pears.

Celery and Tuna Salad

One can tuna (eight ounces), celery, one small onion, one pepper, lemon, Worcestershire sauce.

Select the curved inner, tender, celery stalks, trim to the desired length, then fill with the following mixture: Drain the tuna, shred fine, mix with the finely cut onion and pepper, season with salt, paprika, lemon juice, and Worcestershire sauce. Coat the inside of the celery shells with mayonnaise, fill with the mixture, cover with mayonnaise. Serve on lettuce. Garnish with celery tips.

Pimienta and Tomato Salad

One can pimientas, one can tomatoes (No. 2), one onion, one teaspoon sugar, four cloves, one bay leaf, one-half package gelatin, one teaspoon salt, one-eighth teaspoon pepper, lettuce.

Use the pimientas whole, straightening them into original shape. Boil the other ingredients, except the gelatin, for ten minutes, then add the gelatin which has been soaked in one-half cup of water; filter through cheese cloth. When cool, and just about to set, fill the pimientas. Let them stand until the gelatin is well set, cut into slices, place on lettuce, and place a spoonful of mayonnaise on top.

Pimienta Salad

One can pimientas (red and green), five rather small cucumbers, French dressing.

Cut a lengthwise slice of the cucumber, take out the inside with a curved grapefruit knife, so both parts may be intact. Cut the inside into slices, the pimientas into inch strips, and marinate with French dressing. Fill the cucumber shells with the mixture, and serve on fancy paper doilies on plates.

Pea Salad

One can peas (No. 2), one-quarter pound shelled pecans, mayonnaise, lettuce, ripe olives.

Rinse and drain peas, mix with the pecans and mayonnaise, arrange on lettuce, and garnish with ripe olives.

Portuguese Salad

One can pimientas, two tomatoes, one onion, two cucumbers, one clove of garlic, one-half pint vinegar, one-eighth pint olive oil.

Slice pimientas, tomatoes, onion, and cucumbers. Sprinkle with the garlic cut very fine. Pour over the vinegar and oil mixed and seasoned with salt and pepper. The salad may be placed on trimmed slices of bread before pouring on the dressing.

Mexican Salad

One can pimientas, one large onion, three firm tomatoes, parsley, French dressing, lettuce.

Cut the pimientas into long strips, the onion into thin slices, separating the rings, and the tomato into thin slices. Mix the pimientas and onion, and marinate with French dressing. Alternate the slices of tomato and the mixture on lettuce. Sprinkle the finely chopped parsley on top.

Pineapple Salad

One can sliced pineapple (No. 2½), one can cherries (No. 2), lettuce, mayonnaise, cream.

Place single slices of pineapple on crisp lettuce leaves, and fill the center with cherries. When ready to serve, garnish with spoon of mayonnaise into which the stiffly beaten cream has been mixed. (If any portion of the pineapple heart is left on the slices, it should be removed before the slices are prepared, as it is difficult to separate with a fork.)

Pineapple and Grapefruit Salad

One can shredded pineapple, grapefruit, maraschino cherries, cream mayonnaise.

Remove the skin and all the white pulp from grapefruit, open sections, and shred the pulp into fine pieces. Mix with the shredded pineapple and some of the liquor from the cherries. Serve in cocktail glasses with spoon of cream mayonnaise on top, and garnish with cherries.

Pineapple and Nut Salad

One can sliced pineapple (No. 2½), English walnuts, lettuce, mayonnaise.

Cut the pineapple into dice, and mix with mayonnaise. Serve in heart leaves of lettuce, and sprinkle nuts cut into small pieces over the pineapple.

Lobster Salad

One can lobster, lettuce, mayonnaise, gherkins, celery tips.

Cut the lobster into dice and keep on ice. When ready to serve, mix with mayonnaise, arrange on lettuce, garnish with sliced gherkins and the crisp tips of celery.

Fish Roe Salad

One can fish roe (8 ounces), two cucumbers, one onion, French dressing.

Cut the roe into dice, marinate with French dressing to which has been added a teaspoon of onion juice. Arrange on lettuce leaves, and garnish with thin slices cut lengthwise of slender cucumbers.

Tomato Jelly Salad

One can tomato (No. 3), one small onion, four cloves, one-half bay leaf, one-half package gelatin, one teaspoon salt, one eighth teaspoon pepper, mayonnaise, lettuce.

Soak the gelatin in one-half cup water, while the other ingredients are boiled for ten minutes. Press through a sieve and add the gelatin. Fill individual molds. When firm, take from mold, and place on a crisp lettuce leaf with a spoonful of mayonnaise on top. Small cheese balls may be used for a garnish.

Salmon Salad

One can red salmon (No. 1), lettuce, cucumber, mayonnaise, green olives.

Separate the salmon into flakes, place on lettuce leaves, cover with mayonnaise. Garnish with olives, and quarter disks of cucumber.

Egyptian Salad

One cup cold cooked rice, one onion, parsley, chives, one can sardines (No. ¾), lettuce, mayonnaise, canned beets.

Mix highly seasoned rice with grated onion, chopped parsley and chives, and add the finely cut sardines. Serve on lettuce with mayonnaise dressing. Garnish with the beets cut into shreds.

Shrimp Salad

One can shrimp (No. 2), one cup celery, lettuce, green and ripe olives, mayonnaise.

Cut the shrimp into small pieces, saving a few of the finest ones for garnishing. Mix the shrimp and celery with mayonnaise. Place on shredded lettuce with one whole shrimp on top. Garnish with the olives.

Spinach Salad

One can spinach (No. 3), one onion, one ounce butter, lemon juice, one can tongue, tartar sauce, water cress.

Pass the spinach through a food chopper, using the finest knife, and season with salt, pepper, lemon juice, and the butter melted. Pack tightly in slightly buttered individual molds, and cool. When ready to serve, remove from molds, and place on thin, trimmed slices of tongue. Place a spoonful of tartar sauce on each and garnish with watercress.

Tomato Salad

One can salad tomatoes, French dressing, lettuce, chives.

Take the tomatoes carefully out of the can, drain well, and place one on a lettuce leaf. Pour over French dressing and sprinkle with finely chopped chives.

This may be varied in many ways; the tomato may be cut into thick slices and dressed with thin slices of cucumber, or may have mounds of other vegetables, as peas, string beans, etc., and may be garnished with green, ripe, or stuffed olives, or cream cheese balls, mayonnaise, or tartar sauce.

Polish Salad

One can shrimp (No. 1), one can sardines, two hard boiled eggs, one onion, capers, gherkins, parsley, one-quarter cup vinegar, lettuce, mayonnaise.

Cut the shrimp and sardines into small pieces, mix with the finely cut eggs, onion, gherkins, and parsley. Moisten with the vinegar. Serve on lettuce with mayonnaise dressing.

Plain Tomato Salad

One can salad tomatoes, six small onions, lettuce, vinegar.

Drain the tomatoes, cut into thick slices, garnish with thin slices of young onions. Season with salt, pepper, and vinegar.

Sardine Salad

One can sardines (No. ¾), six eggs, mayonnaise, water cress.

Skin the sardines and grind into a paste; boil the eggs hard, cut into halves and remove the yolks. Mix the yolks with the sardine paste, and moisten well with mayonnaise. Fill the whites with the mixture, and arrange on lettuce.

Beet Salad

One can beets, watercress, lettuce, French dressing.

Cut small beets in slices, dip in French dressing, arrange on lettuce leaves with slices overlapping. Garnish with watercress.

Beet Salad

One can beets, mayonnaise, one can peas (No. 1), one cup diced celery, lettuce, olives.

Trim the beets to uniform shape, cut off the end so they will stand on a plate. With a potato ball cutter take out the center, leaving enough of the outside to form a cup. Let the beets stand an hour in vinegar, then fill with the mixture of celery, peas, and mayonnaise. Arrange the beets on heart lettuce leaves, and garnish with olives and the beet balls.

DESSERTS

In using the canned fruits, a certain amount of sugar is designated, but this will necessarily have to be varied, according to the strength of the syrup in the can.

Pears and Rice

One can pears, large halves, (No. 2½), marmalade, rice, cream.

Cook the rice in milk in a double boiler, mix with cream and place in a shallow round dish. In the rice arrange the pears with the stem end toward center, and cut side up. Fill the scooped-out center of the pears with marmalade. Serve with a sauce made from the reduced syrup in the can flavored with maraschino.

Strawberries and Macaroons

One can large strawberries (No. 2), two dozen macaroons, one wine-glass rum.

Put a layer of macaroons in the bottom of the dish in which the dessert is to be served, then a layer of the drained strawberries. Sprinkle with sugar, then another layer of each until all are used. Pour the rum over them, and set on fire. The rum may be set on fire at the table.

Berry Pudding

One can berries (No. 2), two tablespoons corn starch, or four of flour, one-half pint thick cream.

Drain the berries, mix the juice with the cornstarch, and add sugar if the syrup is not sweet enough. Put in a double boiler, mixing the berries in, and cook until thick. Serve either hot or cold, with the cream, sweetened.

Peach Conserve

One can peaches (No. 2½), one lemon, one orange, one cup sugar, one cup raisins, one cup walnut meats.

Cook the thickly sliced outer skin of the lemon and orange in the peach syrup until tender, then add the peaches sliced, the walnuts cut in pieces, and also the raisins. Cook until of the desired consistency.

Peaches and Macaroons

One can peaches (No. 2½), one dozen macaroons, one egg yolk, one cup white wine.

Drain the peaches and place in a pan with the pit side up, reserving two of the pieces. Mince these with the macaroons, adding the beaten egg yolk and one tablespoon of sugar. Fill the peaches with the mixture, pour over them the wine, and sprinkle with sugar. Bake for ten minutes in a hot oven. A sauce may be made of the excess syrup, or it may be poured around the peaches while baking, and served as a sauce.

Surprise Puffs

One can fruit, biscuit dough.

Make a rather thin biscuit dough, with which half fill gem cups; on this place a half apricot, peach, or other fruit, well drained, then more dough on top, and bake. The syrup may be concentrated by boiling, properly seasoned, and used for a sauce.

Apricot Soufflé

One can apricots (No. 2), six egg whites, sugar, cream.

Drain the apricots, run through a food-chopper, and sweeten to taste. Add to the stiffly beaten whites, and bake in a buttered cake-pan for about half an hour. Serve with whipped cream.

Apple Pudding

One can apples (No. 2½), one ounce butter, three eggs, sugar, cinnamon, breadcrumbs.

Butter a deep baking dish, strew with crumbs, then pieces of apple, season with sugar and cinnamon, then another layer in the same way, placing crumbs on top, and dotting with butter. Beat the eggs light and pour over all. Bake for about half an hour. A few minutes before taking from the oven, shake powdered sugar on the top to give it a brown color. Serve with cream or a sauce made from the juice in the can.

Cherry Soufflé

One can cherries (No. 2), two tablespoons flour, two ounces butter, one pint milk, four eggs, nutmeg, cinnamon, one-half pint cream.

Wet the flour with the milk, then heat to thicken. Beat the egg yolks until light, add the butter softened and the spice, and mix with the milk, then add the stiffly beaten whites, the drained pitted cherries, and the cream. Bake in a hot oven, and serve immediately. A sauce may be made, if desired, from the syrup.

Pineapple Mousse

One can grated pineapple (No. 2), one tablespoon gelatin, one pint cream, one cup sugar.

Soak the gelatin in water, then add to the heated drained juice from the pineapple, strain, and cool. As it begins to stiffen, fold in the beaten cream, then mold, and freeze. To make it richer, the pineapple may be cooked with sugar, cooled, and used as a sauce.

Apple Dumplings

One can apples (No. 2½), one cup sugar, two teaspoons baking powder, one pint sifted flour, milk, nutmeg, salt.

Put the apples, syrup, and sugar into a covered saucepan, season with cinnamon, and heat. Make a soft dough of the flour, baking powder, salt, and milk, sifting the flour two or three times to make it very light. When the apple mixture boils, drop pieces of dough the size of a walnut in and cook for twenty minutes. The mixture may be used as a sauce. Other fruits may be used instead of the apples.

Garnished Apricots

One can apricots (No. 2), one cup sugar, one pint double cream, one-half cup chopped nutmeats.

Whip the cream, add the sugar and nuts, and fill the centers of the drained apricots with the mixture. Garnish with a half nut meat if walnuts be used, or a whole meat if a smaller nut.

Apple Pudding

One can whole apples (No. 3), one cup raisins, seeded, one cup sugar, three eggs, one teaspoon salt, one pound flour, one pint milk, one ounce butter, one teaspoon baking powder.

Butter a baking dish, set the apples in the bottom, filling the core with the raisins and sugar. Make a batter of the flour, salt, baking powder, and milk, beating until light, then add the well beaten eggs. Pour the batter over the apples, and bake in a moderate oven. When done, loosen the edges of the crust, and turn it upper side down on a plate. Arrange the apples on the crust.

Jam Pudding

Three tablespoons jam, three tablespoons flour, three tablespoons sugar, three ounces butter, one teaspoon salt, one-half teaspoon soda, one-half pint milk, two eggs.

Cream the butter and sugar, add the well beaten yolks, then the salt, jam, flour, well beaten whites, and lastly the soda dissolved in the milk. Cook in a covered dish, set in a pan of water and bake for one and one-half hours. The pudding may be served with cream, or a sauce made by creaming one cup of sugar with one-quarter pound of butter, add this to a cup of cream heated in a double boiler, then a well beaten egg. When it has thickened, add a tablespoon of brandy. In making the sauce, it is improved if it is beaten constantly with an egg beater while thickening.

Fruit Bavarian Cream

One can fruit (No. 2), one-half pint double cream, one cup sugar, four eggs, one-half package gelatin.

Soak the gelatin in water, then dissolve if necessary with the heated drained juice from the fruit, add the sugar, the well beaten eggs, and part of the cream. When beginning to set, add the stiffly beaten whites and the rest of the cream beaten dry. The fruit should be arranged in a mold, the mixture poured over it, and allowed to set. In serving, use sherbet glasses, and garnish with a rosette of whipped cream.

Fig Pudding

One can figs (No. 1), one cup crumbs, one-half pint milk, three ounces powdered suet, one-half teaspoon salt, one-half teaspoon nutmeg, one-half teaspoon cinnamon, three eggs.

Drain the figs and cut into small pieces. Soak the crumbs in the milk, then add the well beaten eggs, spices, and suet. Stir in the figs which have been dredged with flour. Turn into a greased pudding mold, with a tightly fitted cover, and steam for three hours. Use the drained syrup for a sauce, and garnish with whipped cream.

Berry Ice

One can berries (No. 2), one cup sugar, two cups water, lemon.

Boil the sugar, water, and the juice drained from the berries for about ten minutes. Cool, and if not tart, add the lemon juice, then freeze. The berries may be used in a pie or tarts.

Prune Short Cake

One can prunes (No. 2), one-half pint double cream.

Make a light biscuit dough, roll thin, and cut into rounds, placing two together, with a small bit of butter between them so they will separate readily when baked. Prepare the prunes as for soufflé, and use as one would the raw fruit, topping with whipped cream.

Fruit Pudding

One can fruit (No. 2), slices of bread one-half inch thick, butter, two egg whites, spice.

Line a pudding dish with the slices of bread, buttered, place the drained fruit on top, then cover with more buttered bread. Cover the pan, place in a pan of water in the oven, and bake for one and one-half hours. Make a meringue of the egg whites, and brown lightly. The fruit juice may be thickened with arrowroot or cornstarch, and used for a sauce. Some syrups may need more sugar and some seasoning.

Berry Ice Cream

One can berries (No. 2), one pint double cream, one pint milk, one cup sugar.

Mix the berries and cream, dissolve the sugar in the milk, then add to the other ingredients, and freeze. The syrup from the can may be held out, more sugar added, and boiled until thick, then served as a sauce, a tablespoon on a service of the ice cream. Any berry or small fruit may be used.

Fruit Gelatin

One can fruit (No. 2), one-half package gelatin, one cup sugar, cream.

Any fruit with clear syrup, as apricots, peaches, plums, etc., may be used. Filter the juice from the fruit, so that it may be clear. Soak the gelatin in water, then add the heated juice and the sugar. If the fruit is in halves, one half may be used for a service, placing it in a small shallow dish, and when the gelatin is about to set, pouring it over the fruit. If the fruit is sliced, the slices may be used to line a dish, and the gelatin poured over. Serve with the cream either plain or whipped. The whipped cream goes farther than the plain.

Fruit and Custard

One can fruit, one-half cup sugar, two teaspoons corn starch, one-half pint of milk, one egg yolk.

Drain the fruit and line a dish with the pieces, then pour over it a custard made of the other ingredients. The custard should be made in a double boiler, and when cold, poured over the peaches.

Peach Fritters

One can halved peaches (No. 2), powdered sugar, three egg yolks, one-half pint milk, four tablespoons flour, one saltspoon salt.

For the batter beat the egg yolks well, then add the milk, flour, and salt. Drain the peaches, sprinkle with powdered sugar, and dip in the batter. Fry in deep fat.

Cherry Boats

One can cherries (No. 2), one can marmalade (No. 1), one-half cup sugar, one-half tablespoon arrowroot, one-eighth teaspoon salt, two tablespoons currant jelly, one-half tablespoon brandy, one tablespoon maraschino syrup, one-half ounce butter.

Line boat-shaped tins with pie paste rolled thin, prick and fill two-thirds with uncooked rice. Bake in a hot oven until browned, then discard the rice, and remove the pastry from the tins. Cover the bottom of the boats with marmalade, and on this arrange the cherries in a row. Large ones are preferred. Serve with a sauce made by mixing the arrowroot, sugar, and salt, then adding gradually two-thirds cup of boiling water, stirring constantly. When thickened, add the other ingredients.

Raspberry Layer

One can raspberries (No. 2), one-half package gelatin, one cup sugar, one lemon, one-half pint cream.

Dissolve one-half package of gelatin in two cups of boiling water, add one cup sugar, and lemon juice to flavor. Strain to make clear, then pour into a mold and allow to stiffen, holding the remaining half in a warm place so it will not set. Heat the juice from the raspberries, and in it dissolve the other half package of gelatin. When cool, pour over the lemon layer, and when this layer has become stiff, pour over it the remainder of the lemon gelatin. This may be served with either plain or whipped cream, but not covered with the cream, as the layers should be seen.

Pineapple, Grapefruit, Oranges

One can grated pineapple (No. 2), two grapefruit (large), four oranges.

Peel the grapefruit, separate the sections, then remove the pulp, cutting into small bits; peel the oranges and cut into thin slices. Mix the pineapple with the prepared raw fruit, and let stand to season before using. If not sweet enough, add sugar.

Prune Soufflé

One can prunes in syrup (No. 2), one-half pint double cream, vanilla, lady finger biscuits.

Slip the stone from the prune and cut the flesh into pieces or run through a meat chopper, using the coarse cutter. Beat the cream dry, flavor with vanilla, and fold into the prunes. If the prunes are not sweet enough, sugar should be mixed with them before putting in the cream. White of egg may be used instead of cream, in which event the mixture should be baked long enough to cook the egg. Garnish the edges with cream or egg whipped and forced through a piping-bag.

Pineapple in Ice Cream

One can grated pineapple (No. 2), one jar currants in jelly, one pint double cream, one pint vanilla ice cream, one-half cup powdered sugar, one tablespoon kirsch, one teaspoon vanilla.

Beat the cream until stiff, add the sugar, vanilla, kirsch, and currants; beat thoroughly. Line a lemon mold with the ice cream, fill the center with the mixture, cover with the ice cream, cover, and pack in one part salt and two parts finely crushed ice. Let stand three hours.

Pineapple Fritters

One can pineapple, sliced, one-half cup sugar, one tablespoon kirsch.

Drain the slices, dip in batter, and fry in deep fat. Make a sauce to serve with them of the sugar, the syrup from the can, and the kirsch. This may be omitted, however, as the syrup is well flavored without it.

Strawberry Charlotte

One can strawberries (No. 2), one-half pint double cream, sponge cake.

Drain the berries and mix with the stiffly beaten cream. Line a mold with slices of the sponge cake, fill the center with the strawberries and cream. If not used immediately, keep separate, holding the cream in the refrigerator.

Apricot Meringue

One can apricots (No. 2), one-half pint double cream, four egg whites, four ounces powdered sugar.

Whip the cream until three times the original volume, and place it in the refrigerator on a fine sieve to drain. Beat the egg whites dry, add the sugar, then drop by tablespoonfuls on white paper placed on an oven board. Place in a slow oven, with the door open, until dry and browned slightly. When cool, remove the soft part in the center and replace with half an apricot. Place mounds of the whipped cream on top and serve. The meringues may be filled with whipped cream and pieces of apricots. Peaches or other tender fruit may be substituted for the apricots.

Sliced Pears

One can pears, halves (No. 2½), one tablespoon brandy.

Drain the pears, arrange in a glass dish. Cook the syrup from the pears until fairly heavy, add the brandy, and pour over the pears.

Apple Tarts

One can apples (No. 3), sugar, two egg whites, pie crust.

Line individual tart pans with pie crust, flute the edge, slice the apples and arrange them so that the slices overlap. Sweeten and spice to taste. Have the egg whites beaten dry, so that when the pies are baked, the meringue can be put on, and the pies returned to the oven for the meringue to brown.

Peach Cake

One can sliced peaches (No. 2), sugar, butter, biscuit dough, one egg.

Make a rich biscuit dough, adding to it the well-beaten egg, and mixing with milk. Mix rather thin, so that it can be spread without using a rolling pin, and place in a round layer cake tin. Arrange the peaches in overlapping layers, sprinkle liberally with sugar, and dot with butter. Bake so as to brown the dough.

Marquise Pudding

One can pears (No. 2½), one can shredded pineapple (No. 2) one can pitted cherries (No. 2), four egg whites.

Drain the fruit and reduce the syrup. Pass the pears through the meat chopper. When the reduced syrup is cool, add to it the pears, and place in the freezer, turning until partly frozen. While freezing add the stiffly beaten whites, then the rest of the fruit. Put the mixture in a mold, and surround with ice and salt.

Plum Pudding, Cold

One can plum pudding, one tablespoon gelatin, one cup sugar, one-half cup lemon juice, one-half cup brandy, two cups water.

Remove the pudding from the can and place in a round mold, make a jelly of the other ingredients, and when ready to set, pour round the pudding. Set in the refrigerator. When ready to serve, dip the mold in hot water for an instant to facilitate the removal of the pudding, and serve in slices. A spoonful of hard sauce may be placed on top.

Fruit Pudding

One can shredded pineapple (No. 2), one can apricots, halves (No. 2½), two oranges, puff paste, sugar.

Line a baking dish with puff paste, on this place a layer of the pineapple, sprinkle with sugar, then place a layer of sliced oranges with sugar strewn over them, then a layer of apricots with sugar. Repeat the layers until the dish is full. Cover with the puff paste, and bake to a light brown. A sauce may be made from the pineapple and apricot syrups.

Pumpkin Pie

One can pumpkin (No. 2), two eggs, one and one-half cups sugar, one pint milk, one-half teaspoon ginger, one teaspoon cinnamon, one-half teaspoon salt.

This is sufficient for two pies. If the spiced pumpkin be used, only the eggs and milk are needed.

Peach and Tapioca Pudding

One can peaches (No. 2½), one cup tapioca, sugar, four ounces butter, mixed ground spice, lemon.

Cook the tapioca in a double boiler for half an hour, using a quart of water. Put the peaches in a pan, sprinkle with sugar, the spice, the grated rind of the lemon, and dot with butter. Pour the tapioca over the fruit, bake to a light brown, and serve with a cream or wine sauce.

Canned Fruit Ice Cream

Drain the syrup and sweeten if necessary. This is best done by boiling the syrup after the addition of the sugar. If desired, it may be concentrated by cooking. When cool, add an equal quantity of scalded cream and freeze. To scald the cream, place in a double boiler, removing it when the water on the outside boils. The drained fruit if large may be cut into dice or put through a food chopper, using the coarsest knife, then added to the frozen cream about an hour before it is to be used, and well mixed.

Another way is to line the mold with ice cream, fill the center with the fruit, or the fruit mixed with whipped cream, then cover with the cream, and pack in ice for about two hours.

Pastry Squares

Roll pastry very thin, cut into four-inch squares, bring the points to the center, and press lightly. Bake until browned, then put a spoonful of jam in the center, with a spoonful of meringue on top, brown lightly in the oven.

Pastry, Plain

Two cups flour, four ounces butter, one-half teaspoon salt, one cup water.

Sift the flour and salt, cut in the butter with a knife, add the water, a little at a time, setting the portion mixed to one side. Save a little of the dry mixture for the board. Roll out, then fold and roll a second time. Other shortening may be substituted in part for the butter. The flour,

shortening, and salt may be mixed in large quantities and kept dry in the refrigerator, a portion being mixed with water when needed. By this means the time taken to make a pie is much shortened, besides having the paste very cold when the water is added. A preparation of this sort is on the market. The preparation of flour and shortening may be used for biscuit dough by sifting in more flour and baking powder.

Tarts

The pastry as given above may be used to line tart pans, pricking the bottom to prevent puffing, and placing in the refrigerator for half an hour before baking. When baked, they can be filled with jam, or a purée made by draining canned fruit, passing through a food chopper, seasoning, then heating to concentrate slightly. A mound of meringue may be placed on top, and is an improvement.

Baked Dumplings

One can fruit, pastry.

The fruit should be drained from the syrup, and the desired amount placed in the center of a six-inch square of pastry. Sugar and spice to taste; then brush white of egg on the edge of the pastry, bringing the four points to the top. Flute the edges by pinching and twisting, and brush the surface with white of egg. A few minutes before taking from the oven sprinkle with powdered sugar to form a glaze. The syrup may be made into a sauce. The canned fruit is really better than the raw for dumplings, as the fruit is cooked, and the dumpling can be taken out of the oven when the pastry is baked.

Canned Fruit Short Cake

Any of the canned fruits may be used instead of raw fruit in making shortcakes. Drain the fruit from the syrup, and cut it into suitable pieces and sweeten. Use the syrup for a sauce by concentrating. Arrowroot may be used to thicken, and a teaspoon of wine, kirsch, or maraschino added.

Jam Roly-poly

One can jam (No. 1), one pound flour, one-half pound suet, one egg, one-half pint milk, salt.

Make a dough of the flour, salt, suet (finely shredded and free from skin and fiber), the well-beaten egg, and the milk. Roll it into a long strip, a quarter-inch thick and the width of the pan to be used. Spread with the jam, which may be any kind, begin at one end and roll it so as to hold the jam inside, moisten the edges and press together. If a plainer dough be desired, the amount of suet may be reduced, and baking powder added to lighten the dough. Or six ounces of butter or other shortening may be substituted for the suet. Canned fruit, as strawberries, raspberries, cherries, etc., may be drained and used instead of jam, and sauce made from the syrup.

Raspberry Purée

One can black raspberries, one pint double cream, four ounces powdered sugar, vanilla.

Drain the berries as dry as possible in a sieve, then pass through the meat chopper, using the fine cutter. Whip the cream dry, add the sugar, and flavor with vanilla. Add the purée to the cream, reserving a part of the cream. Serve in glass dishes, garnish with piped rosettes of the uncolored cream. Any canned fruit may be substituted for the raspberries.

Fruit Rosettes

One can fruit (No. 2), one-half pint double cream, four eggs, one-half pint milk, three cups flour, one-half teaspoon salt, two tablespoons sugar.

To make the rosettes, make a batter of the flour, salt, and sugar sifted, and the well-beaten eggs, added to the milk, then mixed well with the flour. Add more milk if necessary. Let the batter stand at least an hour before using. Heat the rosette iron in hot fat, dip to half its height in the batter, then return to the hot fat and fry brown. Place the rosettes on soft paper. When ready to

serve, put the fruit in and garnish with whipped cream. These are useful for serving small amounts of different kinds of fruit.

Desserts for Children

One pint milk, four ounces semolina, five ounces powdered sugar, one egg, three whites, salt, fruit.

Soak the semolina in the milk for a while, then cook gently for half an hour, or longer, if cooked in a double boiler. While hot add the sugar, salt, egg, and the stiffly beaten whites. Pour into individual molds. When cool, turn out, and serve with jam, or shredded pineapple, or a purée made from the fruit drained, and passed through a meat chopper. These may be still further varied by using small fruits whole, by mixing cream with the purée of fruit, or reducing the fruit syrup and using it as a sauce.

Macaroons and Cream

Syrup from a can of blackberries, one pint double cream, ten macaroons, four ounces powdered sugar, vanilla.

Whip the cream dry, add sugar and vanilla. Reserve a part of the cream for garnish. To the remainder of the cream add the macaroons broken into small pieces. Serve the macaroon mixture in glass dishes, garnish with rosettes of the reserved cream, colored with the blackberry syrup.

Bavarian Cream with Custard

One-half pound sugar, seven egg yolks, one pint milk, one-half ounce gelatin, one pint cream, one ounce powdered sugar, vanilla.

Beat the sugar and egg yolks until light, add the gelatin, previously softened in a half cup of water, then pour on the scalding hot milk. Place over a low flame, stirring constantly, and remove from the fire when the custard has set sufficiently to coat the spoon. Strain, and while cooling, stir occasionally. While the custard is cooling, the cream may be whipped dry, and have the powdered sugar and vanilla added. When the custard is about to set, the cream is added and the whole well beaten.

A sauce may be made of the syrup from a can of fruit, filtered to remove the particles of fruit, and reduced. If necessary, sugar may be added during the reduction. Using the custard as a basis, the sauces may be varied by using that from different fruits and by adding a few drops of kirsch, maraschino, almond, etc.

Bavarian Cream with Fruit

One can fruit (No. 2), juice of two lemons, one ounce gelatin, one pint cream.

Make a purée of fruit by passing through the food chopper, add the lemon juice, and if necessary, more sugar, heat to boiling point. Add the gelatin, previously softened in water. Take from the fire and beat thoroughly. When cool and about to set, add the stiffly beaten cream. Plain cream may be served.

The fruit Bavarians admit of many variations. If specially firm, small fruit be used, the fruit may be served whole, reserving some of the finest for garnishing, and heating only the syrup from the fruit. After the gelatin is added, the juice should be filtered, and when cool, the fruit is added, and lightly mixed, so as to leave the fruit embedded in the clear jelly. Then the whipped cream is folded in lightly. When specially large, fine fruit is used, as halves of apricots, peaches, pears, etc., the jelly may be made from the syrup only, and a mound of it placed in the hollowed pit of the fruit, with the cream mixed with the jelly, or used for garnishing.

Fruit Ices

Ices may be made in great variety from the canned fruit. The fruit may be made into a purée, if necessary, more sugar added, and when the fruit is not sufficiently tart, lemon juice. Combinations of different fruits may be used to obtain additional flavors. To some of the preparations, such as pineapple and cherries, a few drops of kirsch may be added, and to others, maraschino or other suitable cordial.

Fruit and Ice Cream Dishes

There are many dishes which may be made of ice cream and fruits, which are both attractive in appearance as well as being palatable. They are given under the name *coupes* in the recipes retaining the French names, and usually named after some public person, so that the names mean nothing to one not familiar with hotel or restaurant menus. Chantilly cream is often one of the ingredients. This is cream beaten dry, sweetened, and flavored with vanilla or other essence. These should be served in glasses of different shapes, the kind depending on the particular combination. A few are given to indicate some of the possibilities.

Vanilla Ice Cream, Cherries, Cream

Partly fill the glass with the ice cream, on this place some large pitted cherries drained from the syrup. Cover with a mound of Chantilly cream.

Orange Ice Cream, Grated Pineapple

Partly fill a tall glass with the orange flavored ice cream, fill with rich grated pineapple. If the pineapple is not sweet enough as it is in the can, it may have sugar added and reheated to blend the sugar, then used when cool.

Combinations Which May Be Used

Almond ice cream, peaches, cream.
Vanilla ice cream, currant jelly, cream.
Vanilla ice cream, raspberry purée, cream.
Vanilla ice cream, apricot, cherries in hollow.
Chocolate ice cream, apricot, cream.
Pineapple ice cream, apricot, cream.
Vanilla ice cream, prune purée, cream.

These may be varied by placing the ice cream vertically in the glass with a layer of fruit purée between, and a mound of the whipped cream on top, or the fruit purée and the cream mixed for the central layer.

CANNED FRUIT FOR PRESERVES AND JAMS

There are some persons who like to prepare their own preserves, jams, and conserves, in order to get some particular effect which pleases them. It may be the addition of a little vinegar, lemon, geranium leaf, or a different proportion of spices. These preparations can be made from gallon canned fruits to good advantage. The extra standard and standard grades furnish fine stock for preserves, and the standard for jams and conserves. The seconds and water grades may be used for the latter, though, as a rule, there is no economy in doing so, and the stock is not quite so good. The advantage in using the canned stock lies in the fact that waste is eliminated, that the work can be done when convenient and in the quantity desired, and that there is no necessity for a large number of jars. There is the further advantage of always being able to blend two or more fruits, irrespective of the times at which they mature. The cost of stock is much less in gallon cans than in the small ones, and frequently much less than the cost of the fresh fruit, when the quality is considered.

The methods of preparing fruit are not clearly differentiated, in many cases different names being used for the same preparation, or one name is used to designate different preparations. This is not only true for the later works on cookery, but also for the earlier works. The terms by which certain preparations are designated should be exact, and clearly differentiated, so that the manufacturer, consumer, and official should be in accord as to what the term implies. At present the only term which seems to be understood as indicating definite ingredients and definite treatment is the word jelly, but jam, marmalade, conserve, and preserve are loosely used, and defined in various ways.

Preserve

A preserve is a preparation of fruit or vegetable, with or without spices, but with sugar in sufficient quantity to keep

without the use of any other agent and without being hermetically sealed. The term seems to have been introduced about 1600, and in the earliest times referred to confectioners' preparations of fruits and vegetables. The term has been used very loosely, and is applied indiscriminately to jam and marmalade, especially when it is the desire to take advantage of the better term to merchandise an inferior article. The real distinguishing feature of a preserve is that the fruit or vegetable is retained whole or in large distinct pieces in a very heavy syrup. When the product breaks up or becomes mashed to pieces in the syrup it properly becomes a jam. The making of a preserve requires greater care in the selection of the kind of fruit and its condition, and also takes more time to incorporate the proper amount of sugar than in the making of jam or marmalade. In the making of a preserve, it is necessary to have the final syrup almost at the point where sugar crystals form. The term "preserved fruits" frequently seen upon glass jars containing fruit in syrup (which will test 30° to 35° Brix) is misleading.

In making a preserve from canned stock, the juice is drained from the fruit and the latter is put in pans in shallow layers, not more than 2½ inches in depth. The syrup is concentrated until it has lost about one-fourth its volume and then sugar added equal in volume to the water which has been evaporated. When the syrup has cooled below 180° F., it is poured over the fruit. The following day the syrup is drained from the fruit, without disturbing the latter any more than is necessary, heated, and about one-eighth its volume is evaporated, sugar again being added to make up the loss. The syrup is poured over the fruit and this procedure is repeated every day for a week or ten days. The object is to bring the syrup to the proper strength very gradually, otherwise there is shrinkage of the fruit. There is a further advantage that much better fruits can be used. At the factory the strength of the syrup is increased by regular steps, always using a Brix spindle or hydrometer to do the testing. When the syrup has reached a point near

saturation, the fruit is placed in jars and the hot syrup poured over it, and the jars sealed. (The usual procedure is to start with a syrup testing about 20° and to increase each step by 5°.)

Conserve

The term conserve carries nearly the same meaning as preserve. It is an older term by about fifty years as it can be traced to about 1550. It has been applied indiscriminately to all fruits in syrup—preserves, jams, and marmalades. At the present time its special application is to combinations of fruits, or combinations of fruits and nuts, in syrup rather than to a single fruit.

Jam

A jam is a preparation of fruit and sugar, spiced or not spiced, more or less broken up by cooking or grinding, and evaporated to a fairly heavy consistency. A jam is the simplest preparation which can be made from fruit and sugar. The origin of the term, in the culinary sense, is somewhat doubtful, but from the beginning there has been the idea of bruising or crushing, and since 1730 the term has been used in essentially the same sense that it is today.

There is no real standard for jams, as the proportion of sugar may be varied depending upon the sweetness or tartness of the fruit, and it may be cooked to produce a light or a heavy body. In many of the household recipes the sugar and fruit are recommended in equal weights, but this method originated before hermetic closure jars were easily available, the object being to have the product keep under any household condition. This proportion is not the best for all products, nor is it so necessary under the modern method of packing.

In making jams from canned stock, the liquid is drained from the fruit and boiled until it is reduced to about one-half its volume; a quantity of sugar equal to the volume of syrup is then added and it is again cooked until it reaches a temperature of 217.5° F. (103° C.). In the meantime the

fruit is run through a meat chopper which cuts it into small pieces. As the fruit has previously been cooked in the can, very little cooking is required to bring it to the required consistency after it is added to the hot syrup. The final cooking should reach 217.5° F. (103° C.) for many fruits. Thus made, the jam will have a lighter color and less of the cooked flavor than the regular home-made jam, due to the shorter time required in cooking. Fruits which form jelly readily will not need to be cooked to as high a degree as those which are poor in pectins. Some plums give the proper consistency at 216.5° F. (102° C.), while some other fruits require 219° or 221° F. (104° or 105° C.). No hard rule can be laid down for the amount of sugar, as this depends upon the tartness of the fruit and the flavor desired. The general rule for making jams from fresh fruit and sugar is pound for pound, but a lesser proportion of sugar will suffice for the canned, besides permitting a larger amount to be eaten since they are less cloying to the taste, and as jam is a good food, its consumption is desirable. Jam has been given to soldiers to take the place of their allowance of meat, and has been found satisfactory in being more palatable and also in providing a proper food value.

In cooking the liquid before the fruit is added, a bag of spice may be added. Any of the ordinary spices may be used whole, and held loosely in a cheese-cloth bag. The bag can be left in the liquid for a short time when the spices are fresh, and used in a second batch for a longer time. The syrup should be skimmed carefully and, after the fruit is added, stirred only sufficiently to prevent sticking, and to loosen the mass to permit the scum to rise. This should be removed from time to time as carefully as if jelly were being made. Some persons think that because the fruit is in the form of jam that it can be stirred continuously. The object should be to have the fruit in as nearly a marmalade condition as possible, having a clear appearance.

With some fruits that lack tartness or much individuality, a small quantity of vinegar improves the finished flavor. Some of the larger varieties of plums that lack flavor when

used alone, are improved by the use of spices and vinegar. The vinegar seems to make apparent the latent flavor.

Many combinations may be used such as:

1. Peaches, spices, and orange marmalade.
2. Cherries with currant jelly (the heavy syrup that fails to become firm works well).
3. Raspberries and rhubarb.
4. Apricots and grated pineapple.
5. Pineapple slices cut into quarters or points, or the pieces, with vinegar and spices.

Figs cut into half-inch pieces and cooked with a small amount of vinegar and spices are a decided improvement over the usual lemon preparation.

Dried prunes which are now canned are exceptionally good for jams, and may then be used in soufflés as well as eaten as jam. The cooking in the closed can conserves their flavor to a much greater extent than in the home method of stewing. They are usually canned in syrup, so that no further sugar is required. Spice may be added and is desirable. The prunes have so much body that sometimes it is necessary to add liquor, which may be water or any fruit juice, and they need only sufficient cooking to blend them properly. When spicing is desired, some water may be added to the syrup at the start, so as to afford an opportunity to cook the liquid with the spices before adding the fruit. The small fruit may be used as they are just as good and much less expensive than the larger ones.

A feature in the use of the previously cooked fruit is that the cooking has destroyed the life of the tissue so that there is no resistance offered by the cells to the entrance of the sugar, consequently no shrinking or toughening occurs. In using the raw fruit in syrup, the stronger solution on the outside draws the water from the cells of the tissue so as to bring about an equalization of the densities, and with the withdrawal there is a shrinking of the cells and a consequent toughening. This feature is more readily noted in larger pieces than in the small pieces left after the grinding, and is the reason that orange, lemon, and grape fruit rinds

are cooked in water first, when used for marmalade. The shrinking is eliminated when the cooked fruit is used.

Butter

A fruit butter differs from a jam in being cooked and stirred or run through a sieve to give a smoother body; it has a thinner consistency and a lesser quantity of sugar.

Compote

Compote is a form of fruit preparation which has come from the French, and is of later origin than the other terms, dating from about 1700. The term is used to designate a fruit stewed in sugar, and usually so cooked as to preserve its form. Like the other terms it has been used for both the single fruits and mixtures, and also for fruits that have been broken into a jam-like structure. Less sugar is used than in preserves and jams, as compotes are consumed in a short time.

Marmalade

A marmalade is a form of preserve made by boiling fruits possessed of jellying properties with sugar, the whole fruit or pieces being suspended in the jelly. This is an old culinary term dating to about 1500, and like the others it has been applied to jams and preserves as well as to its distinctive type. The original marmalade stock seems to have been the quince, though the tendency in recent years has been to make the term apply to a product from citrus fruits, of which the rind cut into thin slices or pieces is a part. In Europe the Seville orange is used almost exclusively, and is imported for making marmalade into this country. It imparts a different flavor from that of our domestic orange. Lemons, limes, and grapefruit are also used as well as combinations of these fruits with bitter and sweet oranges.

The term marmalade is also used in preparations made from berries in which the juice is first made into a jelly and at the completion of the cooking, the whole fruit added. Compound marmalades are also made by making a jelly

of the juice of one fruit, like orange or apple, and then adding the other fruit.

In the preparation of any fruit a thermometer should be used, as otherwise there is no certainty as to the result. The length of time that a jam, jelly, or other preparation should be cooked cannot be given even approximately, because the time depends mainly on the intensity of the heat applied, and secondarily on the volume that is being cooked and the amount of surface exposed for evaporation. A certain amount of moisture has to be driven off, and fruits vary in their moisture content; after the moisture is driven off, there is a further cooking necessary to obtain the desired consistency. Where it is desired to retain the natural flavor and color, the more quickly the cooking is done the better. In the making of jam, however, there is so much risk of burning where the direct fire is used that it is safer to cook more slowly. In using a thermometer, the vexed question of time does not enter; when a certain degree of heat is reached, the consistency will necessarily follow. It simplifies the process materially, as it is reduced to the reading of the thermometer.

APPENDIX

FOOD POISONING

It is frequently alleged that illness has been produced by the use of canned foods, and it is therefore apropos to present a brief review of what constitutes food poisoning. As canned foods are not generally eaten alone, it is necessary to consider the subject rather broadly and to indicate the relation that each kind may bear to cases of illness.

1. Illness may result from eating certain foods as a matter of personal idiosyncrasy, or special susceptibility. Some persons may be made ill from eating certain things which thousands of others eat every day with no unfavorable results. For example, some persons develop rash after eating strawberries, and others are similarly affected after eating buckwheat cakes. Many persons who live in the interior, and go to the seashore, are made ill by eating seafood, as lobster, crab, or shell fish. The illness may be slight and transitory or it may be quite severe. The symptoms may vary from a mild rash, or "hives," to a severe intestinal irritation. The illness is not due to a definite poisonous principle, but to some peculiar individual susceptibility. With some persons it occurs only once, while with others it seems to recur and to become more severe each time the offending food is taken. There seems to be evidence that with some persons the use of certain canned food has the same effect as the same food freshly prepared.

2. Food may become infected with a poison during its development, as ergot, occurring in rye. As far as known, however, no poisoning of this character results from the use of any canned food.

3. Illness from the use of diseased meats and milk. It is well established that there is danger from the use of meats from animals affected with certain diseases, like trichina and tuberculosis. A greater danger, however, is from the use of meats from animals infected with

septic or pus-forming diseases. The danger from the use of meat from diseased animals is greatest when it is only partly cured or insufficiently cooked, as in hams, dried beef, mild-cured sausages, etc. There are people, especially among the Germans, who are rather fond of such meat, and they are the most frequent victims of disorders of this character. Milk from diseased animals is even more dangerous than the meat, and, furthermore, owing to the ease of outside infection, this product may also become the carrier of typhoid, scarlet fever, diphtheria, etc. In commercial canning the meats and evaporated milk are subjected to a temperature of 230° to 250° F., which no pathogenic organism can stand, and therefore the danger of direct infection is eliminated. Condensed milk is not given such a high temperature, but is heated to, or near, the boiling point and for a longer time than is practised in pasteurization. The safety measure in this last product, therefore, exceeds the requirements of health officials for fresh milk.

4. It is believed that illness may result from poisonous products formed in the body as a result of disease. The evidence upon this point is more or less contradictory, but the effect of high temperature is to break up such complex compounds and to give a greater protection than in the ordinary cooking. No defense can be offered for the use of meat or milk from any diseased animal, but if, perchance, such meat or milk should pass inspection, the operation of canning affords the maximum protection.

5. Poisoning may result from some forms of decomposition, especially in meats, fish, and milk. For a time this was thought to be due to a product produced by certain organisms, but there are some investigators who hold that these products are formed in certain stages of decomposition, and are not dependent upon particular species of organisms. The poisonous substance in such cases acts like a powerful chemical and in some instances can be separated as an alkaloidal body. This is known as ptomaine poisoning.

It is well known that poisoning does not result from the

use of all decomposed meats or other foods. Some game and chilled meats are purposely held until they show marked evidence of decomposition, and in fact are not considered prime until they are "ripe." Some persons bury fish until it is in such an advanced state of decomposition that the fins come away on moderate pulling. Sour milk and cheese are due to the action of organisms, but ordinarily are consumed with impunity. At times, however, violent illness and death will result from the use of meat, milk, and fish that show none of the usual evidence of decomposition, or at least that of an objectionable character. This most frequently results from foods prepared as salads, or foods held at a low temperature in an ice box for several days. It seems probable that poisoning may result from the use of canned foods as well as the freshly prepared if held under the same conditions and if infected with the same kind of organisms. It is, therefore, not a question of whether the stock be canned or not canned, but of the kind of infection after it is prepared and held for consumption. It is well established by the campaigns in cities for better milk for babies that marked advantage has followed the use of pasteurized milk over raw milk and that the advantage has been due to the destruction of objectionable bacteria which cause intestinal diseases. If the diseases in the children had been due to toxins or poisons formed by decomposition the good results would scarcely have followed as they would not have been broken up at the low temperature of pasteurization. Spoilage in canned foods may result from under processing, or from a leak in the container, and all such foods should be alsolutely discarded.

There is some question as to whether ptomaine poisoning can result from the use of material which has undergone decomposition before canning and the toxin remain active in the food. The toxins and similar biological products, are broken up by heat, especially at the temperatures that are used in the processing of meat, milk, and fish.

Ptomaine poisoning has been alleged as the result of

using every class of canned foods, but it is doubtful whether ptomaines can occur in many fruits and most of the vegetables. This form of toxin is either produced by organisms which require a highly nitrogenous medium upon which to grow, or by the decomposition of nitrogenous matter. The fruits and most vegetables do not furnish sufficient protein, and the relatively high acidity of the fruits is also probably inimical to this form of decomposition.

6. Illness of the types known as botulism, paratyphoid, typhoid, etc., has been ascribed to canned foods. Botulism is a disease known as meat poisoning and has been known for a long time, especially in the sausage-eating districts of Europe. This form of illness differs from ptomaine poisoning in that it is due to the ingestion of very large numbers of virulent organisms along with whatever toxin may have been formed in the food. In ptomaine poisoning, the effect is that of a rapidly acting chemical, primarily affecting the nerve centers. In botulism there is the combined effect of a poison and of organisms, which is slower and more prolonged. The conditions giving rise to this form of illness are usually the eating of uncooked meat, and also like those in ptomaine poisoning, the mixing of meats with celery, watercress, lettuce, etc., which may have been grown upon sewage polluted ground, or become infected subsequently in handling. The use of raw vegetables alone, or if cooked, might have resulted in no harm, but by bringing them in contact with meat or fish for a time, these act as culture media to increase the numbers and virulence of the organisms. The canned food receives the blame, though it may have contributed only indirectly to an unfortunate result.

7. Illness has been charged to the use of spoiled foods. As spoilage is nearly always manifested by swelling of the can, foreign odor, unpleasant taste, some discoloration, etc., there is little excuse for using something unwholesome through error. The same injunction applies alike to canned and fresh foods, not to use anything which has spoiled or which is of doubtful character.

8. Poisoning from acid, solder, and tin. If there ever were a real basis for believing that poisoning arose from these sources, there is only remote ground for that at present. When solder is used at present, it is only upon the outside of the can and the total quantity used is small compared with early methods. The only flux to which objection has been made is chloride of zinc, and this has been largely superseded by other material. When chloride of zinc is used, the quantity required to solder the entire can is many times less than the minimum medicinal dose. The tin occurring in the canned foods results from the action of the food upon the container, and is the same as that which occurs in the use of any tin vessel used in cooking. The recent researches upon the poisonous effect of tin do not bear out the claims made by the early investigators, as the form in which it occurs in the canned food is such that it cannot be assimilated.

9. Decreased nutritive value through the destruction of vitamines. Researches in this direction are of very recent origin and while it seems to be shown very conclusively that foods do contain very minute quantities of a substance designated as vitamine, that the quantity which is obtained in a mixed diet is far in excess of the body demands. Whatever criticism is made upon canned foods, applies with equal force to all cooked foods, and since no one would advocate all canned or all cooked foods in any normal diet, this criticism is not of much force.

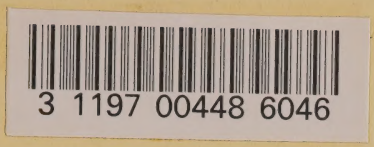
10. Illness produced by the breaking up of protein compounds. It has been demonstrated that when protein bodies are subjected to a high temperature, they break up or split into different compounds and that one part of this split proteid is very toxic if injected into the body. As long as the food is taken by way of the alimentary tract, poisoning does not result. The heating used in canning is not greater than that used in the regular home preparation of foods, in boiling, roasting, and baking, and food is rarely taken into the system except in a normal manner, so that while the scientific observations upon splitting of proteids is true, it is a wrong assumption to make that

poisoning may follow the use of canned foods any more than from the use of other cooked food.

11. Food intoxication. When foods which are very rich in an easily digested substance like sugar are taken in large quantity, a form of intoxication may result. The nasty headache which comes after slowly eating a half pound or more of chocolates during an afternoon or evening, and not taking exercise, is probably a typical example of such surcharging of the system. Some canned foods are very rich in sugar and might give the same result, but this should be charged to indiscretion in eating and not to the food material.

12. Illness from mixtures. While a normal body should be able to digest almost any combination of foods, it is not accomplished with ease, and if the digestion processes are below par, due to illness, overwork, fatigue, or mental depression, more or less trouble may result. Fermentation is a common disturbance, acute indigestion and inflammation of the alimentary tract are not infrequent. It is probable that most troubles arise from such causes, and it is just as prone to occur with one class of foods as another and is absolutely independent of any poisonous property in any one of them.

The symptoms of the various kinds of food poisoning are not distinctive, but are easily confused with other forms of illness. The diagnosis of isolated cases, so as to be able to state with a fair degree of certainty that a given case of illness is due to poisoning from some particular food, requires careful work and much more study than is usually given in the routine practice of medicine. If a number of cases occur, as at a banquet or other large function, the problem becomes somewhat simplified. In all outbreaks, the use of laboratory methods becomes necessary to make a proper diagnosis. It is not the desire of the writer to convey the impression that canned foods are blameless for some troubles, but owing to the methods of preparation and the impossibility of contamination while in the package, they present a minimum source of danger.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